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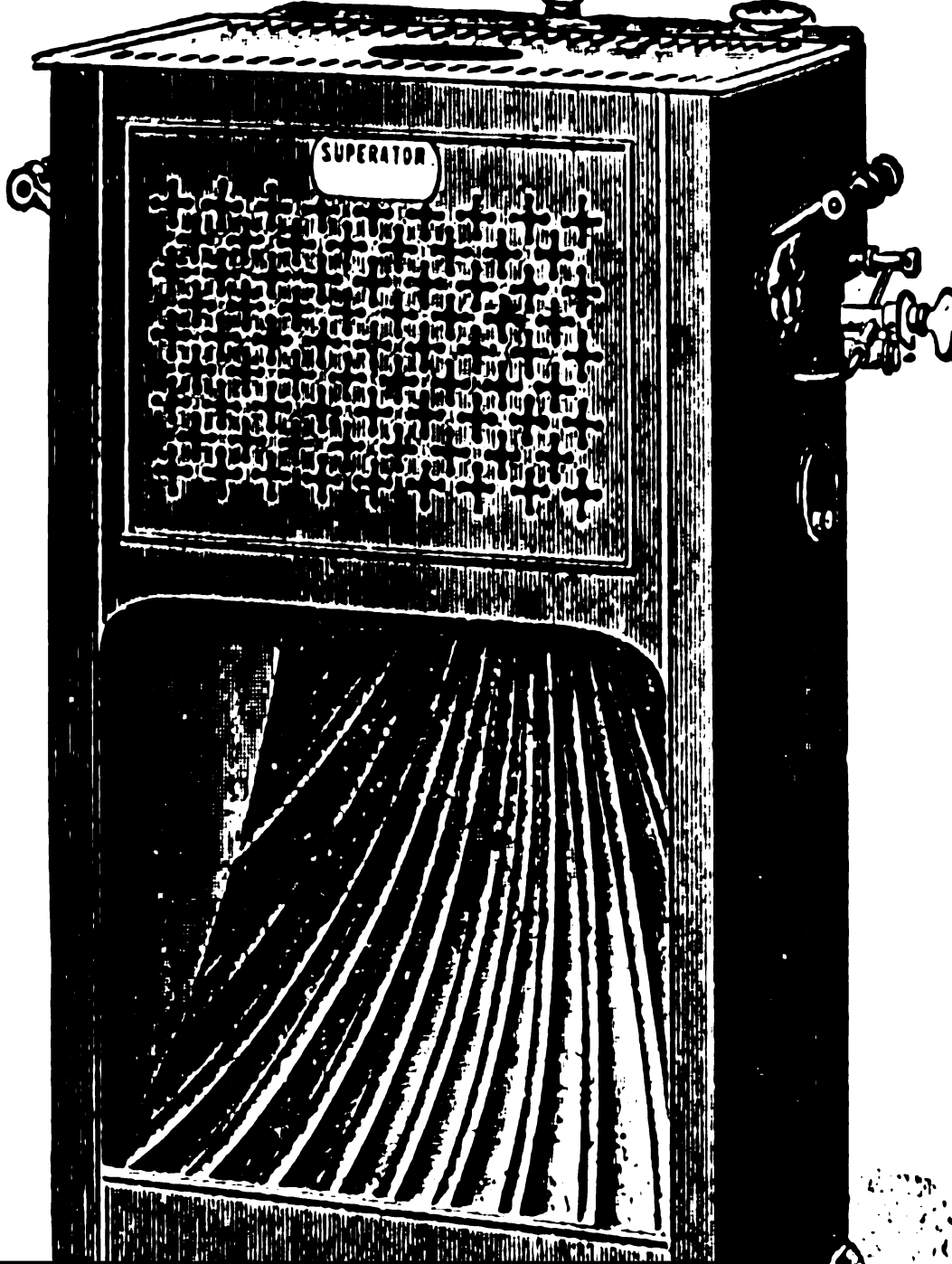
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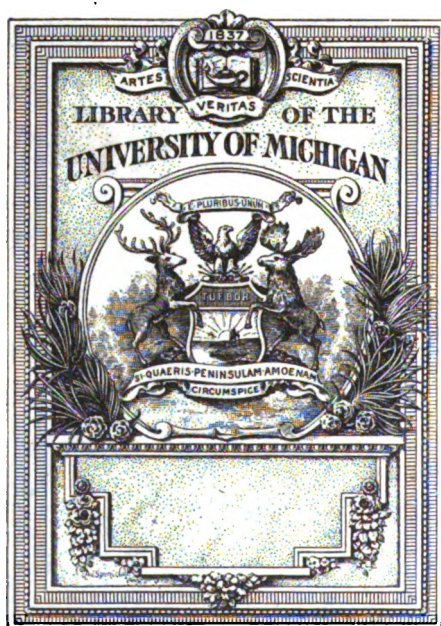
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Monthly consular and trade reports

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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76; for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications are exhausted, and the Department is therefore unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

X PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, 1884-1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S.gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	\$0.96,5	Gold—argentine (\$4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*....	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc .....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis .....	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$3.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centesimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon (\$5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador † .....	.....do	Sucre.....	.48,7	Gold—10 sures (\$4.8665); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland .....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,0).
France	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark .....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling..	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma .....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti .....	.....do	Gourde.....	.96,5	Silver—gourde.
India ‡	Gold	Rupee.....	.32,4	Gold—sovereign (\$4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira .....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen .....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia .....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin .....	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$2 (\$2.02,7).
Peru ¶ .....	.....do	Sol .....	.48,7	Gold—libra (\$4.8665); silver—sol and divisions.
Portugal .....	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶ .....	.....do	Ruble .....	.51,5	Gold—imperial (\$7.718) and ½ imperial (\$3.80); silver—½, ¼, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster .....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bollivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

¶ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

XIV VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1898.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia .....	.....do	Dollar until 1880; bolivi- ano there- after.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	.....do	Peso .....	.96,5	.91,8	.....	.69,9	.68	.85
China .....	.....do	Haikwan tael.	1.61	.....	.....	.....	.....	.....
Colombia .....	.....do	Peso .....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador .....	.....do .....	.....do .....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold	Pound (100 piasters).	.....	4.97,4	4.90	4.94,3	.....	.....
India	Silver	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold.....	Yen.....	.99,7	.99,7	.....	.99,7	.99,7	.99,7
	Silver .....		.....	.....	.87,6	.75,3	.73,4	.91,7
Mexico .....	.....do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡.....	Gold and Silver.	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Peru.....	Silver	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	.....do	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli .....	.....do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia .....	.....do	Boliviano .....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.49,1	\$0.42,4
Central America.....	.....do	Peso .....	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia .....	.....do .....	.....do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador.....	.....do .....	.....do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India .....	.....do	Rupee.....	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§ .....	.....do	Yen.....	.83,1	.74,5	.66,1	.55,6	.52,9	.....
Mexico .....	.....do	Dollar .....	.83,7	.75	.66,6	.56	.53,3	.46
Peru.....	.....do	Sol.....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§ .....	.....do	Ruble.....	.61,7	.55,3	.49,1	.41,3	.39,3	.....
Tripoli .....	.....do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	.....

* See footnote, page xlii.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1	\$0.43,6	\$0.42,8
Central America.	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China.....	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael...	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael...	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †.....	do.....								
India.....	Silver rupee†....	.20,3	.20,7	.20,8					
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †.....	Silver sol.....	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	\$0.41,3	\$0.40,3	\$0.38,2	\$0.38,4	\$0.36,1	\$0.35,2
Central America.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
China.....	Amoy tael.....	.66,9	.65,1	.61,8	.62	.58,4	.57
	Canton tael.....	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8
	Chefoo tael.....	.63,9	.62,3	.59,1	.59,3	.55,8	.54,5
	Chinkiang tael..	.65,3	.63,6	.60,4	.60,6	.57	.55,7
	Fuchau tael.....	.61,8	.60,2	.57,2	.57,4	.54	.52,7
	Haikwan tael...	.68	.66,3	.62,9	.63,1	.59,4	.58
	Hankau tael.....	.62,6	.60,9	.57,9	.58	.54,6	.53,3
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.62,6	.59,5	.59,6	.56,1	.54,8
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53,4
	Shanghai tael...	.61,1	.59,5	.56,5	.56,7	.53,9	.52
	Swatow tael.....	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6
	Takao tael.....	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3
	Tientsin tael....	.64,8	.63,1	.59,9	.60,1	.56,1	.55,2
Colombia.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
Mexico.....	Silver dollar.....	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3
Persia.....	Silver kran.....	.07,6	.07,4	.07	.07,1	.06,6	.06,5

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in **CONSULAR REPORTS** and in **Commercial Relations**:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.422 gallons.
Ardeb.....	Egypt.....	7.6907 bushels.
Are.....	Metric.....	0.02471 acre.
Arabe	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Batman or tabriz.....	Persia.....	6.49 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7,096.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Caffiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	529 pounds.
Do.....	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.7036 pounds.
Cantaro (cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1¼) pounds.
Do*.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, and Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	112.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chetvert.....	Russia.....	5.7748 bushels.
Chih.....	China.....	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2.6997 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS NO. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.5006 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4.9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	11½ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1493 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.82838 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pic.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¾ pounds.
Sagene.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	do.....	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in com-
merce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quintal (100,000 grams) equals 220.46 pounds.
 Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6418 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1.550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

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THE RUSSIAN PETROLEUM TRADE.

PRODUCTION OF CRUDE OIL IN THE BAKU FIELDS.

The crude-oil production of the Baku fields, for the first time since 1894, fell off last year, leaving 1901 the record year as far as the volume of production is concerned. The falling off was certainly not great, but it was a break in the monotony of steady increase which has been going on for eight years, resulting in more than doubling the production in that time.

The statistics show results only, and do not indicate any of the causes for the falling off or give any reliable basis upon which to predict the future. The undoubted cause of the decline in the production was the overproduction of 1901, which was brought about by the opening for drilling of considerable tracts of territory belonging to the Russian Government. The result of this overproduction was a decline in the price of crude oil to a figure which was in many cases less than the amount to be paid the Government as royalty on the territory—to a figure, almost the whole year through, at which the lessee of Government territory could not work without considerable loss. The falling off from 1901 in the amount of the production from this Government territory in 1902 was not great, but there was little or no drilling done on it and no new work commenced. Few producing wells were pumped in the territory where the royalty was excessive, and many of the wells which were drilling

and near completion were stopped. In the exceedingly rich district known as Bibi-Eibat this production fell off about 1,000,000 barrels from 1901, and for the greater part of the year work on the Government territory in that district practically ceased.

The low prices also naturally stopped much work in other districts and upon other than Government territory, for money was so scarce that the majority of the operators had all they could do to secure sufficient to pay current expenses without increasing their obligations by commencing new work. This is very clearly indicated by the statistics of operations, as the number of new wells commenced in 1902 was only 171, against 282 in 1901 and 473 in 1900, while in 1902 there were only 214 wells completed, against 358 in the preceding year.

With 416 wells drilling at the beginning of 1902 and 171 new wells started, the 214 wells completed in that year show an average depth of 1,302 feet and an average initial production of 292 barrels per well per day, against an average depth of 1,086 feet and an average production per well per day of 330 barrels for the 358 wells completed in 1901, indicating a very material increase in the depth of drilling and a not inconsiderable falling off in the average productiveness of the wells; and notwithstanding the production from flowing wells in 1902 was less than 600 barrels per day less than in 1901, the 214 wells completed in 1902 being insufficient to maintain the production, as the falling off in the daily average production in 1902 over 1901 was a trifle over 11,000 barrels. The beginning of this year finds a still smaller number of wells drilling than at the beginning of last year, and as there seems to be absolutely nothing in the low price of crude now ruling to induce greater energy in drilling, the statistics indicate, apparently, a still further decline in the volume of production, and were it not for the change in conditions pending, because of the governmental authorities practically releasing the holders of high-royalty territory from the original conditions of their leases, there is little doubt that the statistical situation would correctly indicate the state of affairs. As stated before, and clearly indicated by the average price of crude at wells, work upon this Government territory under the original conditions of the leases has been practicably impossible, and many of the holders of high-royalty leases signified, as early as the end of 1901, their intention of giving up their leases, but petitioned the authorities for a change in royalties from a fixed amount in kopecks per pood (5 gallons) to a percentage of the oil produced. In December, or early in January this year, notice was received at Baku that this petition would be granted by the Government and the holders of these leases would be permitted to work them upon the temporary payment

of from 15 to 30 per cent royalty, instead of the original royalties of from 3 to 12 kopecks (1.5 to 6.1 cents) per pood (5 gallons), until such time as the Government could again offer the leases for competitive bidding, with the understanding that the holders of the leases shall eventually pay the royalty which the leases bring at the next auction—i. e., the lessee should pay up till the time of the auction a royalty of from 15 to 30 per cent of the production, and after the auction should in future pay the percentage bid for the lease and make up to the Government any amount over the royalty they have been paying which the lease may bring, and receive back any amount under the royalty which the lease may bring. I have not yet heard how the temporary royalties are to be graded, and am under the impression that that part of the arrangement has not yet been published, but that the arrangement is satisfactory to the lessees is pretty clearly indicated by the preparations being made for the resumption of drilling upon wells that have been shut down for a year and for starting new wells, and it seems to be the general opinion of the trade that owing wholly to this change upon the part of the governmental authorities the trade is now facing a prospect of still harder times than it has experienced in the year just past, for it is believed that this incentive to increased energy in working such undoubtedly rich territory as Bibi-Eibat has proved to be can only result in a material increase of the production, when even a slight increase in the production must necessarily be sufficient to hold prices very low throughout the year. The demand in 1902 was apparently just about equal to the supply, notwithstanding the low prices for all products which prevailed throughout the year, and with the expected material increase in the crude production there is no hope whatever of any advance in the price.

If it were new and unproved territory which was to be opened up by this change in royalties, there would be some chance for improvement during the current year, as the time necessary to complete a well from the first drilling is so great that wells starting now would have little chance of coming in during the year, and consequently a still further decline in production might be looked for for a number of months; then, the territory might prove of little value; but the fact is that much of the work which will now be resumed is in a condition nearing completion, while there are many wells which can be pumped immediately; therefore, the increase in the production is expected at once, and whether it comes or not the fact remains that this expectation is undoubtedly having a very depressing influence on the trade.

AVERAGE MONTHLY PRICES OF CRUDE OIL AT WELLS.

The average monthly prices of crude oil at wells in the last two years were, per pood (5 gallons):

Month.	1901.		1902.	
	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>
January	11.42	5.8	4.6	2.37
February	10.35	5.3	4.7	2.42
March	10.4	5.4	5.35	2.75
April	7.35	3.8	6.42	3.3
May	7.88	4.1	7.54	3.9
June	8.4	4.3	7.64	3.93
July	7.8	4	7.03	3.62
August	7.69	3.95	6.44	3.31
September	7.25	3.7	7.14	3.67
October	7.625	3.9	7.98	4.1
November	6.75	3.4	7.87	4
December	5.875	3	6.13	3.15
Year	8.25	4.24	6.65	3.42

The difference of 1.6 kopecks (0.82 cent) per pood (5 gallons) in the average prices for the two years does not seem great, but there is little doubt that it was sufficient to destroy any prospects of a profit for the average producer and to cause a loss to many. Very recently it was stated by producers who have been operating in territory held in fee or at a small royalty that they could not produce crude at a less cost than 6 to 7 kopecks per pood (26 to 29.4 cents per barrel), and that with the deep drilling which is now necessary cheaper crude was impossible except in cases of big flowing wells; consequently, the cost of crude to the producers who pay royalties averaging over 3 kopecks (1.5 cents) per pood (as was the case with nearly one-third of last year's production) must be very much greater. In fact, it is very doubtful if the average price of crude at wells to-day—i. e., 7 kopecks (3.6 cents) per pood—covers its average cost; therefore it is not difficult to understand the fears of the trade that any increase in production will result in making the business even more unprofitable than it was in 1901, which was the most trying year financially the trade has had for some years. There were remarkably few failures in the trade last year, but with the depression increasing and continuing at least another year, it is not at all certain that the producers can all get through successfully.

In the report from this consulate last year,* it was stated that the probable average cost of producing crude exclusive of royalty was not less than 5 kopecks (2.57 cents) per pood. This estimate has been practically confirmed by information obtained since, and with the cost of land or the very low royalty of 1 kopeck per pood it will

*ADVANCE SHEETS No. 1312 (April 10, 1902).

easily reach the figure given by the producers before mentioned. I must not, however, fail to add that the steadily increasing depth of the wells and the increasing water in them are undoubtedly increasing the cost of production. The feature of water in the wells has been treated fully in these reports in the last two years, and requires no further attention here than the statement that up till the present time no adequate means of overcoming it have been found. The use of cement mentioned in previous reports is still occasionally resorted to, but, I am informed, without success in more than one or two cases out of a hundred, which are probably the cases where the water really comes in from the top, although no one in Baku apparently believes that the water can possibly come from anywhere else. However, with no rain during seven or eight months in the year and exceedingly porous soil and no water for drilling (the water for the boilers being brought from the Caspian Sea), as is the case at Baku, it is not easy to believe that the 100,000 to 150,000 barrels of water pumped from the wells daily all comes from the surface, particularly when it is a well-known fact that some of the strongest flowing wells, which have produced up to 100,000 barrels daily, have produced even more mud and water.

Very recently a wholly new and original plan of shutting off or, rather, of overcoming the difficulty of water in the wells has made its appearance. The idea, as I understand it, is to freeze the water to the bottom of the hole, thus solidifying it and permitting only oil to be raised by the baler. I can not say that I very clearly understand the plan, for I do not know how the oil is to be got through the column of frozen water which, being below the oil, must, it would seem, effectually shut out the oil from the hole. If, however, this scheme proves practicable, it will apparently prove also expensive, for it is stated that it will cost from 20 to 25 rubles (\$10.30 to \$12.87) per day per well, which, as the average production per day per well is not much over 1,000 poods (5,000 gallons), means from 2 to 2.5 kopecks (1.03 to 1.28 cents) per pood added to the cost of the crude, unless the production of the well is increased by the scheme, which, I understand, is claimed for it by the inventors. Even in that case, if generally adopted, the result is likely to be far from satisfactory, for with a very slight increase in the production of each well the general increase will be sufficiently large to upset entirely the price of the oil.

NEW TERRITORY.

Notwithstanding the fact that the conditions existing in the trade for more than a year were not at all of a nature to induce search for new territory, apparently the most important well in the history of

the trade was struck early in the month of December. It seems to be an exceedingly good well in territory which is practically new and undeveloped, miles away from any other known field. This well belongs to Nobel Brothers, and is located within a couple of miles of a station on the Vladikavkas Railroad called Berekei, which is about 20 miles northwest of the town of Derbent and 170 miles northwest of Baku. Drilling was commenced some years ago upon the property upon which the well is located and a very little oil was found at very shallow depths. A few years ago the property was acquired by Nobel Brothers and proper drilling commenced, with the result that in the first week in December oil was struck at a depth of 1,295 feet and commenced to flow at the rate of over 1,000 barrels per day, and up to within a few days—the last I heard from it—was still flowing at only a slightly diminished rate. The tests of the oil have proven it to be of quite as good quality as the best of the Baku crude, and entirely free from water and sand.

If the statements which have been made regarding this well are correct—and they are generally accepted as true—its importance to the Russian oil trade is difficult to overestimate. However, it is impossible to properly judge its value until sufficient drilling has been done to develop the extent and the quality of the territory, which, owing to the time necessary to drill a well to the depth of this one, is not likely to be within this year. Some good wells and some dry holes may be struck in the year, but not sufficient work completed to fully develop the importance of the strike.

There has been and continues to be considerable speculation in land for drilling purposes in the vicinity of the well, although such an excitement as a similar strike in the United States would create is wholly unknown; but there is no doubt that much work will be promptly commenced in the neighborhood and that drilling will be energetically prosecuted. While it will, as before stated, probably take much longer than this year to clearly demonstrate the extent and value of the territory, the prospects are sufficiently good for a new field to assist in the depression already existing at Baku.

As stated in previous reports, a number of "wild-cat" wells were started at various distances from Baku several years ago, but up to date none of them have yielded oil in paying quantities. Almost all such wells were shut down during the past year, and it is not at all likely that much work of that nature will be done this year elsewhere than in the vicinity of Berekei.

REFINING.

The depression in the price of crude oil was naturally reflected in all its products, and the average monthly prices per pood (5 gallons) of refined oil at Baku, both on vessels on the Caspian Sea

and tank cars for shipment to Batum given below, show that the refining interest suffered apparently equally as much as the producing interest, if not more.

Average prices per pood.

Month.	1901.				1902.			
	On vessels.		In cars.		On vessels.		In cars.	
	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>
January	14.07	7.24	20.58	10.59	6.5	3.34	7.2	3.72
February	11.71	6	19.25	9.92	5.125	2.64	6.16	3.17
March	9.29	4.78	16.64	8.57	.....	.....	5.3	2.73
April	7.05	3.63	8.48	4.36	5.87	3.02	5.37	2.76
May	7.09	3.65	8.79	4.52	6	3.09	6	3.09
June	8.7	4.48	11.19	5.76	7.25	3.73	6.87	3.54
July	9.46	4.87	13.75	7.08	.....	.....	8.19	4.21
August	7.62	3.92	10.21	5.25	.....	.....	9.12	4.69
September	7	3.6	8.75	4.52	10.4	5.35	11	5.66
October	7.75	3.99	9.5	4.89	11	5.66	15.22	7.84
November	8.25	4.24	9	4.63	13.75	7.08	16.41	8.45
December	7.25	3.73	9.37	4.82	.....	.....	14.15	7.28
Year	8.77	4.52	12.13	6.24	8.24	4.24	9.28	4.78

I have already explained that the difference between the price of refined on vessels and cars at Baku is simply a premium upon tank-car capacity, and while this premium disappeared during most of 1902, owing to lack of demand for transportation to Batum, it made its appearance again at the end of the year and has taken something of a more regular and permanent character, because it is now about 3 kopecks (1.5 cents) per pood, just about the difference in the transportation between Baku and Batum and Baku and Novorossisk. At times of great demand for transportation to Batum, however, it is likely to increase.

On the basis of the output of illuminating oil from Baku in 1902—i. e., 366,685,000 gallons by rail and 234,170,000 gallons by sea—the average price realized by refiners for all their refined was about 8.87 kopecks (4.56 cents) per pood; but as the price on tank cars was only for shipment to Batum and some of the rail shipments were to points on the Vladikavkas Railroad, which only brought the same price as sea shipment, the average was even lower than 8.87 kopecks (4.56 cents) per pood (5 gallons). However, upon the basis of that price, and 3.5 poods (17.5 gallons) of crude plus 3.5 kopecks (1.8 cents) per pood of refined, less 2 poods (10 gallons) of residuum, representing the cost of a pood of refined oil, the results of refining in 1902 were very far from satisfactory; 3.5 poods (17.5 gallons) of crude at the average price for the year at wells (6.65 kopecks, or 3.42 cents), plus one-fourth of a kopeck (0.128 cent) per pood pipeage from wells to refineries (6.9 kopecks, or 3.55 cents, per pood), is

24.15 kopecks (12.43 cents), which, plus 3.5 kopecks (1.8 cents) for chemicals, labor, etc., makes a total of 27.65 kopecks (14.24 cents); this, less the value of 2 poods (10 gallons) residuum at the average price of the year (7.66 kopecks, or 3.94 cents per pood, equal to 15.32 kopecks, or 7.89 cents), leaves 12.33 kopecks (6.35 cents) as the average cost of a pood of refined, and, with the average selling price—8.87 kopecks (4.56 cents)—indicates an average loss of 3.56 kopecks (1.83 cents) per pood on all the refined produced in the year.

Upon the basis of the crude delivered at refineries during the year, the shipments from refineries of the various products, and the stocks at the beginning and the end of the year, the results of refining in the different products were as follows:

Description.	1901.	1902.
	<i>Per cent.</i>	<i>Per cent.</i>
Illuminating	22.4	22.13
Lubricating.....	2.67	2.56
Residuum.....	61.66	61.83
Total.....	86.73	86.52

Taking the above yield in merchantable products for a basis of calculation of the cost of refined gives a slightly more favorable result, as follows:

Description.	Cost.	
	<i>Rubles.</i>	
100 poods (500 gallons) of crude, at 6.65 kopecks (3.42 cents) per pood at wells.....	6.65	\$3.42
Pipeline from wells to refineries on 100 poods (500 gallons) crude.....	.25	.128
3.5 kopecks (1.8 cents) per pood on 22.13 poods (110.65 gallons) refined produced...	.7745	.398
	7.6745	3.946
Less 66.95 poods (334.75 gallons) residuum at average price of 7.66 kopecks (3.94 cents)	5.12837	2.641
Leaving the cost of 22.13 poods (110.65 gallons) refined.....	2.54613	1.305
Average cost of 1 pood (5 gallons) of refined.....	.115	.0592
Average price of refined for the year.....	.0887	.0456
Average loss per pood (5 gallons) during year.....	.0263	.0136

The amount of residuum in the calculation is the actual yield plus twice the amount of lubricating, as it takes 2 poods (10 gallons) of residuum for 1 pood (5 gallons) of lubricating, and the yield is reduced to only the two products because it is impossible to get any accurate information regarding lubricating, it being produced by less than a dozen refiners.

These statistical results, although showing less loss in refining than in 1901, prove a sufficiently bad state of affairs. They do not, however, accurately indicate anything more than the condition of the

refiners who, having no connections with exporters, are compelled to sell their refined product in the Baku market. The number of such refiners is much greater than of those who export their own refined in connection with selling agencies abroad, but their output is not nearly so great as the output of the latter. The larger refiners almost all have their own export and home connections for marketing their goods and as much more as they can purchase, participating in the profits of the refined until it reaches the consumer; and they undoubtedly not only lost nothing on refined exported but probably reaped very handsome profits, for it was asserted and generally believed that during the first half of the year the price at which Russian refined was marketed abroad, particularly in the United Kingdom, was equivalent to more than 40 kopecks (20.6 cents) per pood at Baku, while the market price for the same time at Baku averaged less than 7 kopecks (3.6 cents) per pood, and refined was very often a drug at that price. The export to the United Kingdom was at that time in the hands of merchants owning tank steamers and Baku refiners who have facilities at Batum for shipping, and outsiders—*i. e.*, refiners not in this combination—could only dispose of their refined at Baku. How many other foreign markets were in the same condition I have no means of ascertaining, but while prices elsewhere may not have been as high as in the United Kingdom, it is safe to say that the heavier refiners and exporters did little business at a loss in the foreign markets during the year.

That the Russian home consumption of illuminating oil did not increase, because of the exceedingly favorable conditions brought about by the low prices at Baku for more than a year, is not at all surprising; for with an excise duty of 60 kopecks (30.9 cents) a pood upon illuminating oil the price at Baku plays no important part in the cost to consumers, as even a drop of 17 to 18 kopecks (8.7 to 9.3 cents) per pood in the average price of refined at Baku, as was the decline from the average of 1900, made less than 15 per cent difference to the Russian wholesale buyer, and it is exceedingly likely that the whole of that decline was taken by the merchants.

It would seem, however, that the great decline in the price of refined oil at Baku in the last eighteen months would naturally greatly stimulate the export demand, and the fact that the statistics show a falling off instead of increase in the exports of illuminating oils from Black Sea ports appears remarkable without explanation. That the high prices maintained abroad had no injurious effect upon exports is evident from the increase in the export to the United Kingdom, where, it was said, prices were the highest. Of course, with prices based upon a fair margin of profit above Baku rates, the demand in the United Kingdom might have shown a much greater increase, but that is mere conjecture.

The principal falling off in export was in bulk and case shipment to points beyond the Suez Canal. As to the cause of the decline in the volume of bulk export, I have no information; but the whole falling off in the export of refined in cans and cases is very easily accounted for by the labor troubles here interfering with the manufacture of packages. In a report from this consulate in October last* the strikes of the workmen in the can and case factories here were detailed fully, and it was stated that the largest factory had been closed nearly four months from the middle of March because of a strike of the workmen. The same factory had trouble with the workmen several times later in the year, but was not shut down more than a few days at a time till December 22, when the workmen all went out again. However, after a month's hard times without work or money, a majority of the workmen pleaded to be taken back to work without conditions, and on January 26 the factory started up with about two-thirds its usual force, and is now turning out very nearly its full capacity of packages. The normal output of this factory is about 20,000 cases daily, and therefore with the loss of more than four months' time in the year its output was reduced not far from 3,000,000 cases.

All the other manufacturers of cans and cases here experienced trouble with their workmen during the year, and while none of them suffered from any very protracted stoppages, the labor troubles easily account for the falling off of about 4,000,000 cases in the output, as compared with 1901.

RESIDUUM.

The following were the monthly average prices, per pood (5 gallons), of residuum at Baku in 1902 in comparison with 1901:

Month.	1901.		1902.	
	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>
January.....	13.58	6.99	5.5	2.83
February.....	13.46	6.93	5.3	2.73
March.....	13.05	6.72	6.2	3.19
April.....	9.93	5.11	8.58	4.42
May.....	9.25	4.76	9.37	4.82
June.....	9.81	5.05	9.28	4.78
July.....	8.5	4.37	8.81	4.53
August.....	7.92	4.07	8.72	4.49
September.....	8	4.12	7.96	4.04
October.....	8.25	4.24	7.87	4.05
November.....	8	4.12	7.6	3.95
December.....	6.62	3.41	16.87	3.53
Year.....	8.87	4.56	7.66	3.94

* To appear in Commercial Relations, 1902, Vol. II (in press).

As was anticipated in the last annual report from this consulate, the consumption of residuum in Russia increased materially last year. The statistics of output from Baku show only about 131,000,000 gallons increase over 1901, but the output did not fairly represent the consumption, because of the heavy stocks at Astrakhan at the opening of the year. These stocks were not far from 220,000,000 gallons, and as they could not reach consumers before the opening of Volga navigation, they were just about the same as if they had been left at Baku. If they are deducted from the output from Baku in 1901, it is reduced to about 1,460,000,000 gallons, and that output will then more nearly represent the demand for residuum for the year. As the Astrakhan stocks were reduced about 90,000,000 gallons in 1902, that amount, added to the Baku output, will make it about 1,800,000,000 gallons, or about 340,000,000 gallons more than in the preceding year, an increase of about 23 per cent. And there is no reason to believe that the limit of the Russian consumption of fuel oil has yet been reached, as up to the present it has only been in general use as far north and west as Moscow, west of which there are still immense manufacturing establishments. However, I can not say that with present freight rates and prices of coal the districts west of Moscow can now be reached with oil fuel in competition with the coal. Very recently, however, the newspapers have stated that railways north of Moscow, even up to St. Petersburg, were commencing the use of oil fuel instead of coal, which, if correct, should certainly mean an important increase in the demand for residuum.

The immense importance of Russian residuum as fuel, both to the producers and consumers, will be more clearly grasped in the United States with the figures in barrels of 42 gallons, the standard crude-oil measure of the United States; therefore I will add that the demand for residuum last year was equivalent to 115,000 barrels per day.

TRANSPORTATION.

No increase in the transportation capacity between Baku and Batum was made last year. The extension of the 8-inch pipe line from Mikhailovo to Ag-Taglia was completed, and I understand the line was laid to a point 30 or 40 miles east of Ag-Taglia, but no pumping stations have been erected, without which this extension of pipe line is of no use. The line from the Baku refineries to the station of Volchi-Vorota was also completed, but has not yet been put into use, principally because it has not been needed, as the capacity of existing facilities was not fully utilized last year—the deliveries from Baku at Batum of all products having been considerably less than in 1901. The falling off in the deliveries of illuminating oil amounted to 20,000,000 or 25,000,000 gallons, and was undoubtedly due to the fact that the low prices early in the year made the shipment

of refined for export a losing business. This view is confirmed by the statements of the Baku papers, during the summer, that many refiners were refusing the tank cars allotted to them by the committee for the distribution of transportation.

It is useless to endeavor to guess when the pipe line will be completed from Baku to Batum. A full description of what it had been decided to accomplish in the way of pipe-line construction with the appropriations already made was given in the report from this consulate last year. There has been no change in the ultimate intentions reported, nor has there been any apparent increase in energy in accomplishing the ends in view. Of the whole distance of 550 miles, there are now completed, as far as screwing together is concerned, about 270 miles, and it is my impression that the pipe necessary for the completion of the whole line will be delivered early this year; but there are only about 143 miles of the line in use, and it is absolutely safe to say that the line will not be in working order before three years, even if those in charge of the work should show more energy.

THE GROSNI FIELD.

The Grosni field has not developed, in the year just past, any more importance to the trade of the world than in previous years, as the following figures for the crude production of the field for the last two years show a slight decline:

Production of Grosni field in 1901 and 1902.

Period.	1901.		1902.	
	Production.	Daily average.	Production.	Daily average.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
First half year.....	2,151,790	11,888	2,195,816	12,131
Second half year.....	2,039,128	11,082	1,930,183	10,490
Year.....	4,190,918	11,482	4,125,999	11,304

* Barrels of 42 gallons.

I have not been able to obtain accurate figures as to the amount of drilling done in the Grosni field, but the following estimates of the number of wells in the field at the close of 1901 and 1902 fairly represent the progress in drilling:

Description.	1901.	1902.
Producing wells.....	99	110
Wells standing idle.....	27	25
Drilling wells.....	38	22
Drilling deeper and repairing.....	13	10
New derricks up ready to drill.....	10	12
Total.....	187	188

While these figures show practically no more wells in the field at the end of 1902 than a year before, they show 20 more producing wells, notwithstanding which the production of 1901 was not maintained.

The Grosni producers were probably not quite so badly off during the past year as were the Baku producers, for the reason that almost all the output of the Grosni field is marketable, principally for fuel, at points where it has considerable advantages in freights over Baku, as very little of it is exported in any shape, and no important percentage of it is taken off for illuminating oil. The Vladikavkas Railroad, upon which the town of Grosni is located, takes considerable Grosni residuum for fuel, and there is considerable consumption west of Grosni, where it has from 5 to 6 kopecks (2.5 to 3 cents) advantage in freight over Baku.

The only Grosni product exported last year of which I have information was two cargoes of what was called benzine, shipped to France—one in barrels and the other in bulk—from Novorossisk. This product is also called "ligroïne" by the Grosni people, and is peculiar to that district. It is heavier than the American standard benzine, being about 0.710 specific gravity, and its flash point is from 5° to 10° C. I have no information as to what use the benzine is put in France, but, from the small amount exported, I infer that the market for it is exceedingly limited.

Full statistics of the Baku trade for the years 1901 and 1902 are inclosed herewith.

JAMES C. CHAMBERS,
Consul.

BATUM, *February 26, 1903.*

Production of crude oil of Baku fields in the years 1901 and 1902.

Month.	Balakhani-Sabunchi.		Romani.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	3,788,446	3,784,904	1,127,398	1,624,009
February	3,682,874	3,327,527	1,052,133	1,127,626
March	4,359,301	3,787,911	1,275,661	945,719
April	4,010,152	3,727,854	1,041,721	966,988
May	4,687,200	3,866,276	1,196,530	1,496,699
June	4,024,359	3,641,915	1,086,490	1,314,266
Total for 6 months.....	24,547,332	22,136,387	6,779,933	7,475,267
July.....	4,263,002	3,866,961	1,249,454	1,333,202
August	4,164,013	3,790,464	1,148,448	1,902,549
September	4,192,034	3,557,822	1,102,256	1,231,453
October.....	4,124,849	3,768,113	1,102,055	1,349,599
November	4,130,583	3,596,636	1,740,207	1,826,012
December.....	4,198,939	3,581,825	1,776,465	1,675,178
Total for year.....	49,620,752	44,298,208	14,898,818	16,793,260

Month.	Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January.....	1,273,661	970,466	6,184,505	6,379,379
February	1,113,004	919,359	5,848,011	5,374,512
March	1,273,911	1,373,294	6,908,873	6,106,924
April.....	1,407,029	1,147,080	6,458,902	5,841,922
May	1,046,378	1,091,956	6,930,108	6,454,891
June	1,173,277	838,823	6,284,126	5,795,004
Total for 6 months.....	7,287,260	6,340,978	38,614,525	35,952,632
July.....	1,317,774	1,884,208	6,830,230	7,084,371
August	1,188,358	1,372,311	6,900,819	2,065,324
September	1,171,920	1,226,974	6,466,210	6,016,249
October.....	1,137,970	1,426,356	6,364,874	6,544,068
November	2,454,458	1,823,643	8,325,248	7,246,291
December	1,475,842	1,217,525	7,451,246	6,474,528
Total for year.....	16,033,582	15,291,995	80,553,152	76,383,463

* Barrels of 42 gallons.

Production from flowing wells of Baku oil fields in the years 1901 and 1902.

Month.	Balakhani-Sabunchi.		Romani.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	10,800	81,144	230,340	665,466
February	102,000	99,120	247,800	233,904
March	405,888	161,160	176,904	15,660
April	228,996	149,808	148,800	.....
May	888,540	.....	55,740	489,096
June	340,800	35,136	6,720	341,400
Total for 6 months.....	1,977,024	526,368	866,304	1,745,526
July	367,188	256,932	140,400	440,040
August	477,600	66,972	30,000	935,796
September	621,516	11,316	46,164	120,000
October	334,416	84,612	.....	192,000
November	364,008	179,712	722,640	738,396
December	316,740	91,644	834,240	453,978
Total for year.....	4,458,492	1,217,556	2,639,748	4,625,736

Month.	Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	200,160	287,448	441,300	1,034,058
February	111,720	336,696	461,520	669,720
March	154,440	733,930	737,232	910,740
April	357,360	395,556	735,156	545,364
May	179,940	185,172	1,124,220	674,268
June	204,480	156,540	552,000	533,076
Total for 6 months.....	1,208,100	2,095,332	4,051,428	4,367,226
July	204,612	1,090,116	712,200	1,787,088
August	162,240	568,932	669,840	1,571,700
September	357,000	428,784	1,024,680	560,100
October	220,792	322,884	555,208	599,496
November	1,701,564	749,520	2,788,212	1,667,628
December	714,684	274,716	1,865,664	820,338
Total for year.....	4,568,992	5,530,284	11,667,232	11,373,576

* Barrels of 42 gallons.

Average daily production of Baku oil fields in the years 1901 and 1902.

Month.	Flowing wells.		Pumping wells.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	14,235	33,356	185,265	178,870
February	16,843	23,918	192,374	167,314
March	23,782	29,379	199,085	167,619
April	24,505	18,179	190,791	176,552
May	36,265	21,750	187,287	186,472
June	18,400	17,769	191,071	175,398
6 months.....	21,831	24,129	191,509	175,057
July	22,974	57,648	197,356	170,880
August	21,608	50,700	188,096	177,214
September	34,156	18,670	181,384	181,872
October.....	17,910	19,339	184,183	181,760
November	92,940	55,587	184,568	185,955
December	60,183	26,462	180,180	182,393
Year	31,965	31,160	188,729	178,110

Month.	Total.		Stocks at wells at end of month.	
	1901.	1902.	1901.	1902.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	199,500	212,235	1,290,586	1,830,664
February	208,857	191,232	1,496,298	1,576,604
March	222,867	196,908	1,417,417	1,423,365
April	215,296	194,731	1,327,412	1,285,144
May	223,552	208,222	1,006,589	1,037,732
June	209,471	193,167	1,077,920	1,066,883
6 months.....	213,340	199,186	.....	.....
July	220,230	228,528	1,047,284	935,651
August	209,704	227,914	911,077	922,195
September	215,540	200,542	1,013,734	873,540
October.....	202,093	211,099	932,095	977,332
November	277,508	241,543	2,175,577	1,211,023
December	240,363	208,855	2,058,983	1,218,067
Year	220,694	209,270	.....	.....

* Barrels of 42 gallons.

Crude production of Baku oil fields in 1901 and 1902, less loss and fuel—that is, net effective production.

Month.	Gross production.	Loss and fuel.	Net production.	Daily average.
1901.	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	6,184,505	836,019	5,348,486	172,532
February	5,848,011	756,937	5,091,074	181,823
March	6,908,873	765,862	6,143,011	198,162
April	6,458,902	682,841	5,776,061	192,535
May	6,930,108	743,590	6,186,518	199,565
June	6,284,126	803,285	5,480,841	182,605
July	6,830,230	833,433	5,996,797	193,445
August	6,500,819	754,810	5,746,009	185,355
September	6,466,210	753,382	5,712,828	190,427
October	6,364,874	766,645	5,598,229	180,588
November	8,325,248	830,099	7,495,149	249,838
December	7,451,246	834,943	6,616,303	213,429
Year	80,553,152	9,361,846	71,191,306	195,526
1902.				
January	6,379,379	844,609	5,534,770	178,541
February	5,374,512	619,034	4,755,478	169,838
March	6,106,924	678,071	5,428,853	175,124
April	5,841,922	668,976	5,172,946	172,431
May	6,454,891	649,776	5,805,115	187,262
June	5,795,004	698,770	5,096,234	169,874
July	7,084,371	678,675	6,405,696	206,635
August	7,065,324	679,070	6,386,254	206,008
September	6,016,249	649,100	5,367,059	178,902
October	6,544,068	664,279	5,879,789	189,671
November	7,246,291	679,347	6,566,944	218,898
December	6,474,528	706,621	5,767,907	186,061
Year	76,383,463	8,216,418	68,167,045	186,759

* Barrels of 42 gallons.

Stocks of all products at Baku on December 31, 1901 and 1902.

Product.	Dec. 31, 1901.	Dec. 31, 1902.
Crude:	<i>Barrels.</i>	<i>Barrels.</i>
At wells	2,058,983	1,218,067
At refineries	6,850,733	4,054,002
Total	8,909,716	5,272,069
Illuminating	<i>Gallons.</i>	<i>Gallons.</i>
Lubricating	72,714,855	101,508,265
Residuum	17,876,640	19,295,465
	367,271,330	415,074,810

Stocks at Batum and Novorossisk at close of 1901 and 1902.

Product.	Batun.		Novorossisk.	
	Dec. 31, 1901.	Dec. 31, 1902.	Dec. 31, 1901.	Dec. 31, 1902.
Illuminating oil	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
Solar and distillate	49,793,885	32,040,530	8,745,730	4,366,975
Lubricating oils	2,881,130	2,587,675		
Residuum	6,753,580	4,586,435		
	1,572,180	526,460	3,186,080	1,622,875

Total number of wells in the Baku fields on December 31, 1901 and 1902.

Condition of wells.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
Producing	1,102	1,146	168	167	84	89	1,354	1,402
Trial pumping (exploitation).....	38	16	5	5	5	2	48	23
Drilling	291	216	58	63	67	36	416	315
Drilling deeper.....	61	62	14	19	6	12	81	93
Cleaning out and repairing.....	146	160	24	27	7	24	177	211
Standing idle.....	832	979	75	97	96	117	1,003	1,193
Total.....	2,470	2,579	344	378	265	280	3,070	3,337
Rigs up ready for drilling.....	66	63	3	6	3	5	72	74

Month.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
<i>Wells producing.</i>								
January	1,137	1,132	147	166	100	72	1,384	1,370
February	1,140	1,118	152	159	97	62	1,389	1,339
March	1,172	1,130	149	160	106	66	1,427	1,356
April.....	1,181	1,160	153	167	106	73	1,440	1,400
May.....	1,192	1,163	159	166	103	82	1,454	1,411
June	1,189	1,167	158	167	104	88	1,451	1,422
July	1,181	1,167	155	161	107	85	1,443	1,413
August.....	1,145	1,170	163	159	104	80	1,412	1,409
September	1,158	1,144	162	168	95	90	1,415	1,402
October	1,134	1,169	166	165	96	95	1,396	1,429
November.....	1,122	1,173	172	171	88	102	1,382	1,446
December.....	1,132	1,163	164	169	86	91	1,382	1,423
Average for the year.....							1,415	1,402

Month.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
<i>Flowing wells.</i>								
January	1	2	1	2	3	3	5	7
February	1	1	1	2	2	3	4	6
March.....	2	1	4	1	3	4	9	6
April.....	4	1	2	.....	3	4	9	5
May.....	6	.....	2	1	3	4	11	5
June	3	3	1	2	2	2	6	7
July	3	1	1	2	2	3	6	6
August.....	7	2	1	2	2	3	10	7
September	8	2	1	1	3	6	12	9
October	7	3	.....	2	3	5	10	10
November.....	5	4	1	3	3	9	9	16
December.....	5	3	2	5	4	5	11	13
Average for the year.....							8.5	8

Month.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
<i>Wells started drilling.</i>								
January	27	10	6	1	5	2	38	13
February	27	5	7	.....	6	.....	40	5
March.....	20	7	2	1	5	.....	36	8
April.....	21	10	21	.....	3	.....	45	10
May.....	15	9	6	4	3	1	24	14
June	17	15	5	2	.....	.....	22	17
July	22	11	.....	5	4	.....	26	16
August.....	8	12	.....	5	3	2	11	19
September	5	9	4	5	6	2	15	16
October	12	12	1	3	.....	5	13	20
November.....	5	15	.....	3	1	2	6	20
December.....	4	10	1	2	1	1	6	13
Total.....	192	125	53	31	37	15	282	171

THE RUSSIAN PETROLEUM TRADE.

Wells completed, with average depth and average daily production.

Month.	Balathani-Sabunchi.			Romani.			Bibi-Eibat.			Total.		
	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.
	Number.	Fet.	Barrels.*	Number.	Fet.	Barrels.*	Number.	Fet.	Barrels.*	Number.	Fet.	Barrels.*
1901.												
January.....	14	948	110	2	1,659	286	4	1,106	557	30	1,017	183
February.....	21	1,067	171	3	1,379	523	6	904	404	30	1,071	257
March.....	12	1,066	219	4	1,288	1,131	5	1,029	498	21	980	445
April.....	29	1,085	100	2	1,477	1,245	4	1,071	421	35	1,106	296
May.....	22	1,050	866	1	1,353	475	1	973	204	24	1,029	822
June.....	30	1,004	132	5	1,552	432	3	1,071	271	38	1,085	182
July.....	25	879	141	8	1,379	891	7	1,064	419	40	1,011	341
August.....	20	1,164	189	4	1,328	184	1	1,141	183	25	1,218	188
September.....	26	1,137	543	3	1,246	186	.....	.....	.....	20	1,153	506
October.....	22	1,033	163	6	1,407	104	1	1,393	653	29	1,123	186
November.....	25	1,050	268	7	1,458	1,281	3	1,281	245	35	1,144	501
December.....	15	991	145	2	1,470	360	5	1,225	1,228	22	1,088	411
Year.....	271	1,037	261	47	1,433	772	40	1,099	510	358	1,086	330
1902.												
January.....	18	1,080	286	2	1,281	133	2	1,043	703	22	1,005	310
February.....	25	1,141	164	1	1,442	441	1	1,750	1,017	27	1,183	290
March.....	13	1,127	193	3	1,638	157	1	721	566	17	1,193	208
April.....	14	1,204	279	2	1,484	187	1	1,386	422	17	1,247	277
May.....	20	1,220	170	2	1,708	332	2	707	145	24	1,218	173
June.....	13	1,183	123	3	1,596	220	2	1,680	246	18	1,302	152
July.....	14	1,165	670	1	1,567	167	5	1,498	6,174	20	1,418	856
August.....	14	1,764	158	1	1,491	701	.....	.....	.....	16	1,730	226
September.....	8	1,393	164	4	1,645	26	1	1,701	3,388	13	1,494	370
October.....	11	1,230	212	1	1,799	213	8	1,666	528	20	1,438	438
November.....	16	1,155	116	2	1,631	668	2	1,183	497	20	1,204	210
December.....	17	1,232	138	4	1,442	127	1	2,058	412	22	1,300	148
Year.....	183	1,226	219	27	1,557	245	26	1,444	1,733	236	1,302	292

Output of all products from Baku in the years 1901 and 1902.

Month.	Illuminating.		Lubricating.		Residuum.		Crude.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
<i>By rail.</i>										
January	Gallons. 26,450,000	Gallons. 33,400,000	Gallons. 4,635,000	Gallons. 3,945,000	Gallons. 980,000	Gallons. 1,305,000	Gallons. 6,160,000	Gallons. 6,335,000	Gallons. 38,225,000	Gallons. 44,975,000
February	26,730,000	29,330,000	4,850,000	5,265,000	1,675,000	1,360,000	4,935,000	5,280,000	38,190,000	31,235,000
March	34,485,000	34,635,000	4,045,000	5,060,000	2,015,000	2,420,000	5,440,000	5,840,000	45,985,000	48,855,000
April	31,330,000	24,740,000	4,845,000	5,180,000	2,670,000	2,320,000	4,340,000	4,125,000	37,460,000	31,460,000
May	35,145,000	32,360,000	3,735,000	3,680,000	2,025,000	1,505,000	4,270,000	5,215,000	45,175,000	42,760,000
June	35,145,000	24,995,000	2,660,000	4,380,000	1,690,000	1,910,000	4,675,000	5,145,000	44,000,000	36,340,000
July	34,890,000	29,110,000	3,615,000	3,315,000	1,350,000	1,120,000	4,980,000	4,535,000	44,835,000	38,080,000
August	31,015,000	29,530,000	4,160,000	5,100,000	2,535,000	1,615,000	4,030,000	4,605,000	42,640,000	40,940,000
September	30,340,000	32,995,000	4,120,000	4,205,000	2,535,000	1,390,000	4,030,000	5,795,000	41,095,000	44,815,000
October	31,505,000	32,850,000	4,885,000	4,600,000	1,240,000	1,640,000	4,625,000	5,555,000	42,255,000	44,645,000
November	33,255,000	32,225,000	2,340,000	3,250,000	965,000	2,050,000	4,720,000	6,030,000	41,280,000	43,555,000
December	30,650,000	30,775,000	3,890,000	3,285,000	1,030,000	4,785,000	6,275,000	2,800,000	41,845,000	41,645,000
Total	381,840,000	366,855,000	47,810,000	52,165,000	20,450,000	23,420,000	58,480,000	62,365,000	508,580,000	504,805,000
<i>By sea.</i>										
January	10,400,000	3,455,000	610,000	110,000	7,265,000	8,320,000	120,000	135,000	18,395,000	12,020,000
February	10,225,000	4,070,000	325,000	620,000	20,205,000	20,660,000	3,155,000	1,110,000	33,910,000	25,860,000
March	31,980,000	25,260,000	2,635,000	2,430,000	165,550,000	170,480,000	12,820,000	7,185,000	213,985,000	205,355,000
April	34,070,000	24,765,000	1,630,000	2,785,000	176,205,000	204,355,000	16,110,000	14,635,000	226,015,000	246,540,000
May	30,225,000	27,380,000	370,000	2,395,000	215,490,000	222,170,000	20,335,000	20,675,000	266,420,000	272,680,000
June	29,220,000	20,030,000	2,555,000	1,670,000	218,860,000	217,740,000	16,690,000	19,155,000	267,325,000	260,495,000
July	31,000,000	26,475,000	1,990,000	1,650,000	218,040,000	239,100,000	12,900,000	19,650,000	263,930,000	286,835,000
August	26,535,000	25,335,000	2,340,000	3,355,000	205,575,000	234,795,000	14,360,000	16,095,000	250,810,000	279,510,000
September	22,155,000	22,110,000	1,790,000	1,790,000	203,540,000	209,355,000	14,360,000	8,260,000	244,395,000	241,475,000
October	21,125,000	15,980,000	1,360,000	965,000	112,885,000	150,140,000	10,605,000	1,090,000	145,975,000	168,155,000
November	6,560,000	11,180,000	40,000	485,000	6,880,000	9,635,000	55,000	30,000	13,535,000	21,330,000
December	3,025,000	18,220,000	1,110,000	250,000	7,680,000	7,270,000	90,000	65,000	12,805,000	25,795,000
Total	258,420,000	234,160,000	17,305,000	19,415,000	1,560,175,000	1,603,420,000	121,600,000	107,995,000	1,957,500,000	2,054,990,000

Total.									
January	36,850,000	36,855,000	5,245,000	4,055,000	8,245,000	9,695,000	6,460,000	56,620,000	56,995,000
February	36,955,000	33,400,000	5,175,000	5,885,000	21,880,000	21,420,000	6,300,000	72,100,000	67,095,000
March	67,165,000	59,865,000	6,680,000	8,390,000	167,565,000	172,000,000	13,025,000	259,570,000	254,210,000
April	63,400,000	49,505,000	6,475,000	7,965,000	178,815,000	206,675,000	20,855,000	269,140,000	284,000,000
May	65,370,000	59,740,000	4,105,000	6,075,000	217,515,000	233,675,000	24,605,000	311,595,000	315,380,000
June	64,365,000	54,835,000	5,145,000	7,050,000	220,350,000	219,650,000	21,365,000	311,325,000	305,835,000
July	65,890,000	55,485,000	5,605,000	4,925,000	219,390,000	240,220,000	17,880,000	308,765,000	324,975,000
August	60,460,000	54,865,000	6,500,000	8,455,000	236,110,000	236,410,000	18,390,000	285,420,000	320,450,000
September	59,495,000	55,105,000	6,460,000	5,955,000	208,075,000	210,745,000	18,390,000	293,450,000	285,790,000
October	53,690,000	48,830,000	6,245,000	5,565,000	114,125,000	151,780,000	15,230,000	188,230,000	212,800,000
November	39,815,000	43,405,000	3,380,000	3,735,000	11,685,000	11,685,000	4,775,000	6,606,000	64,885,000
December	34,575,000	48,995,000	5,000,000	3,525,000	8,710,000	12,055,000	2,865,000	54,550,000	67,440,000
Total	640,260,000	602,025,000	65,115,000	71,580,000	1,580,625,000	1,716,840,000	180,080,000	2,466,080,000	2,559,795,000

Average monthly prices of Baku crude oil at wells, per barrel of 42 gallons.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>
January	19	5.6	9.6	9.3	19.7	31	38.9	36.7	56	71.7	49.01	19.74
February	19	5.2	9.2	8.7	25	32	38.9	38	56.4	72.1	44.42	20.17
March	16.9	5	7.8	10	18.8	32.8	32.5	38.9	56	74.3	44.89	22.46
April	16.9	4.2	5.1	12.4	21.9	33.7	32.8	38.5	56	76.3	31.54	27.55
May	14.5	3.1	2.5	11.4	30.2	35.4	32.8	37.1	52.9	79.2	33.82	32.36
June	13	3.1	2.5	14	31.5	35.4	31.5	39.3	55.6	78.7	36.05	32.79
July	11.9	4.2	2.5	14	31	35.8	32.8	44.1	56.4	74.3	33.57	29.17
August	9.5	4.6	4.2	16.6	35	35.2	32.8	44.5	57.9	72.1	33	31.93
September	8.7	5.1	6.8	16.2	39.4	32.7	33.2	44.1	59.9	65.8	31.17	30.64
October	8.9	4.6	6.8	17	35	35.8	34	44.1	66	50	32.72	34.25
November	6.2	5.8	7.7	17.5	28.4	35.8	33.2	48	74.3	54.6	28.97	33.74
December	6	6.2	8.1	19.7	30.6	37.1	37.1	52.8	72.1	52.5	25.23	26.81
Year	12.5	4.6	5.9	13.6	28.4	34	33.7	42.8	60	68.6	32.67	28.54

Average monthly prices of residuum at Baku, per gallon.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>
January	0.42	0.28	0.24	0.29	0.5	0.73	0.85	0.86	1.18	1.49	1.27	0.57
February .....	.37	.23	.24	.27	.52	.69	.75	.87	1.16	1.55	1.26	.55
March .....	.32	.19	.19	.3	.52	.69	.77	.86	1.17	1.64	1.22	.64
April .....	.37	.12	.14	.36	.56	.75	.75	.89	1.18	1.64	.92	.89
May .....	.37	.1	.12	.36	.65	.75	.75	.85	1.17	1.69	.87	.97
June .....	.37	.09	.11	.35	.60	.77	.75	.95	1.21	1.75	.92	.96
July .....	.28	.09	.11	.37	.54	.8	.77	1.06	1.3	1.69	.8	.91
August .....	.28	.09	.17	.42	.54	.67	.75	1.09	1.32	1.66	.74	.9
September .....	.25	.09	.22	.39	.61	.67	.75	1.14	1.29	1.69	.75	.81
October .....	.23	.09	.24	.38	.61	.68	.78	1.18	1.27	1.24	.77	.81
November .....	.19	.11	.26	.42	.61	.7	.81	1.19	1.21	1.31	.75	.78
December .....	.19	.19	.3	.47	.65	.8	.84	1.12	1.36	1.26	.62	.71
Year .....	.3	.14	.2	.36	.57	.73	.77	1	1.24	1.55	.91	.79

Average monthly prices of refined oil f. o. b. vessels on the Caspian Sea at Baku, per gallon.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>
January	1.59	0.92	0.95	0.52	0.8	1.22	1.49	1.18	1.55	2.95	1.32	0.61
February.....	1.49	.84	1.03	.47	.8	1.22	.97	1.09	1.49	2.76	1.1	.48
March.....	1.31	.84	.92	.32	.89	1.22	1.26	1.06	1.40	2.95	.87	.....
April	1.12	.84	.77	.42	1.12	1.22	1.22	1.03	1.49	2.72	.66	.55
May .....	.92	.65	.56	.42	1.22	1.31	.92	1.03	1.69	2.62	.66	.56
June.....	.65	.56	.5	.32	1.4	1.22	.92	1.01	1.94	2.55	.81	.68
July .....	.65	.56	.42	.42	1.59	1.31	.98	1.13	2.17	2.06	.89	.....
August .....	.65	.56	.47	.56	1.78	1.31	.98	1.37	2.31	1.9	.71	.....
September.....	.75	.65	.47	.65	1.83	1.26	.98	1.57	2.65	1.69	.66	.97
October .....	.75	.65	.47	.7	1.59	1.22	1.05	1.68	2.71	1.49	.73	1.01
November .....	.84	.65	.52	.7	1.26	1.22	1.14	1.98	3.2	2.06	.77	1.29
December .....	.84	.84	.53	.8	1.26	.....	1.31	1.59	3.19	1.59	.66	.....
Year.....	.96	.71	.63	.53	1.3	1.14	1.02	1.31	2.15	2.12	.82	.77

*Average monthly prices of refined oil in tank cars at Baku, per gallon.**

Month.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>	<i>Cts.</i>
January	0.32	1.45	2.43	1.22	1.44	2.24	4.53	1.92	0.67
February.....	.52	1.12	2.06	1.03	1.31	2.34	4.4	1.8	.58
March.....	.32	1.12	2.06	1.05	1.28	1.95	4.82	1.56	.5
April .....	.75	1.45	2.8	1.08	1.18	1.56	3.56	.79	.5
May .....	.75	1.49	2.73	.86	1.1	1.54	3.58	.82	.56
June.....	.75	1.68	2.35	.93	1	2.13	2.83	1.05	.64
July .....	.75	1.87	2.62	.93	1.15	2.28	2.67	1.29	.77
August .....	.75	1.97	2.06	.93	1.45	2.48	2.67	.98	.85
September.....	.98	1.97	1.97	1.03	1.55	2.68	1.87	.82	1.03
October .....	.92	1.78	1.97	1.05	1.61	3.16	1.45	.89	1.43
November .....	.98	1.69	1.97	1.14	2.24	3.95	2.58	.8	1.52
December .....	.8	1.97	.....	1.31	1.89	5.05	2.15	.83	1.36
Year.....	.72	1.66	2.09	1.05	1.43	2.61	3.09	1.1	.87

*A note at the bottom of the statistics of prices of refined oil at Baku in my last annual report states that the freight on refined oil from Baku to Batum is 16 kopecks per pood, and that, with other expenses, brings the total expenses from Baku f. o. b. vessels at Batum to about 0.94 cent per gallon. This is incorrect; the expenses from Baku f. o. b. vessels at Batum on refined oil amount to about 1.65 cents per gallon.

Shipments of petroleum products from Batum, Russia, in 1901 and 1902.

To—	Crude and residuum.		Lubricating.		Solar and distillate.		Refined.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Austria-Hungary.....		1,500	1,566,886	1,768,035	2,385,695		3,450,585	7,381,560	5,743,225	
Belgium.....	2,310,665	1,900,650	7,050,995	8,747,840	313,560		7,863,750	18,468,960	21,368,515	
Bulgaria.....	11,750	4,750	53,150	49,600			2,787,050	2,733,300	2,851,950	2,787,740
Cochin China.....							999,640		999,640	
China.....	250	250	250	250			21,320,040	7,624,750	7,625,950	
Egypt.....	11,000	38,050	178,350	277,650			12,827,995	15,536,645	13,017,545	15,852,345
United Kingdom.....	604,105	963,770	8,197,845	9,157,745	16,147,010	20,138,395	47,907,625	74,241,130	72,856,645	104,901,040
France.....	864,755	1,852,680	9,997,420	13,871,675	24,786,145	21,906,125	1,904,100	958,200	36,762,510	38,588,680
Germany.....	1,700,995	1,450,335	9,110,960	9,795,120			11,883,980	23,178,970	22,794,845	34,424,445
India.....			49,000	43,150			53,624,400	42,699,000	53,664,400	42,742,150
Italy.....	221,005	910,790	109,650	170,500		2,750	6,247,045	6,452,785	6,667,700	7,536,825
Japan.....							4,070,000	5,067,850	4,070,000	5,067,850
Java.....							5,832,070	1,471,100	5,832,070	1,471,100
Malta.....							1,182,735	1,841,730	1,182,735	1,841,730
Netherlands.....			337,450	252,500			6,159,815	12,134,540	6,497,265	12,387,040
Philippines.....							1,965,350	2,237,400	1,965,350	2,237,400
Portugal.....							1,116,650	2,202,100	1,116,650	2,202,100
Roumania.....	800		111,450	68,300			540,680	158,860	661,930	228,660
Siam.....		1,500					473,000		473,000	
Spain.....		150	607,020	269,585				607,020		269,585
Suez Canal.....	78,750	85,800	131,850	125,400			53,459,530	43,077,410	53,459,530	43,077,410
Turkey.....	9,350	979,020	58,200	48,050			39,268,960	39,479,560	29,514,600	29,514,600
Other countries.....							1,989,160	6,390,510	2,057,010	7,417,580
Total exported.....	5,903,135	8,180,265	38,459,820	44,645,400	43,632,410	43,037,650	286,192,640	291,013,105	374,188,005	386,885,420
Russia.....	263,300	143,470	1,181,105	1,590,500	19,730		15,267,955	27,857,365	26,732,090	29,591,335
Total shipped.....	6,166,435	8,323,735	39,640,925	46,235,900	43,652,140	43,037,650	301,460,595	318,870,470	390,920,095	416,476,755

NOTE.—"Solar and distillate" means gas oil to the United Kingdom and illuminating distillate to France. Suez Canal means unknown ports beyond the canal, the shipments being in bulk.

Shipments of petroleum products from Novorossiisk, Russia, in 1901 and 1902.

To—	Residuum.		Solar and benzine.		Refined.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
Africa.....							Gallons.	Gallons.
Belgium.....	800,585	1,647,735			297,120	3,034,085	297,120	3,034,085
Egypt.....					2,233,900	741,530	741,530	1,647,735
France.....	1,645,290	751,430		2,336,190			1,645,290	3,087,580
United Kingdom.....	1,722,615	1,035,100	4,562,600		7,875,335	8,458,765	24,160,550	9,493,865
Germany.....	408,635	117,855			990,300	1,257,565	1,398,935	1,375,420
Italy.....	2,137,765	1,076,670			2,030,090	612,930	4,167,855	1,686,600
Malta.....					115,240		115,240	
Spain.....	651,895						651,895	
Suez Canal.....					28,256,705	18,309,305	28,256,705	18,309,305
Total exported.....	7,366,785	4,628,790	4,562,600	2,336,190	42,539,820	28,638,565	54,469,205	35,603,905
Russia.....	1,001,000	2,548,165			13,859,230	7,133,595	24,860,230	9,681,760
Total shipped.....	8,367,785	7,176,955	4,562,600	2,336,190	56,399,050	35,772,160	69,329,435	45,285,265

Total shipments of Russian petroleum products from Black Sea ports in 1901 and 1902.

To—	Crude and residuum.		Lubricating.		Solar and distillate.		Refined.		Total.	
	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.	1901.	1902.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Africa.....							297,120		297,120	
Austria-Hungary.....		1,500	1,566,380	1,768,035			3,429,585		7,381,560	5,743,225
Belgium.....	3,111,240	3,548,385	7,090,995	8,747,840			10,127,250		21,953,045	23,016,250
Bulgaria.....	11,750	4,750	53,150	49,600			2,787,050		2,851,950	2,787,740
Cochin China.....							999,640		999,640	
China.....	250	250					21,320,040		21,320,040	7,625,250
Egypt.....	11,000	38,050	178,550	277,650			13,569,525		13,759,075	15,852,345
United Kingdom.....	2,326,780	1,928,870	8,197,845	9,157,745			55,781,960		87,017,195	113,994,095
France.....	2,550,045	2,604,110	9,097,420	13,871,675			1,204,190		38,407,800	41,676,260
Germany.....	2,199,540	1,568,210	9,110,960	9,795,120			12,874,280		24,193,780	35,799,865
India.....			40,000	43,750			53,624,490		53,664,490	48,742,150
Italy.....	2,358,770	1,987,460	199,650	170,500		2,750	8,277,135		10,835,555	9,226,425
Japan.....							4,070,000		4,070,000	5,067,850
Java.....							5,832,070		1,471,100	1,471,100
Malta.....							1,297,975		1,841,730	1,841,730
Netherlands.....			337,450	252,500			6,159,815		6,497,265	12,397,040
Philippines.....							1,965,350		1,965,350	2,237,400
Portugal.....							1,116,650		2,202,100	2,202,100
Roumania.....	800	1,500	111,450	68,300			549,680		661,930	228,660
Siam.....							473,000		473,000	
Spain.....	651,805	150	607,020	269,585					1,258,915	269,715
Suez Canal.....							81,716,235		81,716,235	61,386,715
Turkey.....	78,750	85,800	131,850	125,400			39,268,960		39,479,560	29,514,600
Other countries.....	9,350	979,020	58,200	48,050			1,989,460		2,057,010	7,417,580
Total exported.....	13,269,920	12,818,055	38,459,820	44,645,400			328,739,460		428,657,210	422,488,925
Russia.....	1,264,300	2,691,635	1,181,105	1,590,900			29,127,185		31,592,320	39,273,095
Total shipped.....	14,534,220	15,509,690	39,640,925	46,235,900			357,859,645		460,249,530	461,762,020

AMERICAN GOODS IN RUSSIAN POLAND.

On account of various troubles existing in the German Polish provinces, the commercial relations between Russian Poland and Germany have become rather strained, and I learn from leading business men in this city that preference is given to all goods other than those of German manufacture. In fact, there is a distinct tendency to avoid the purchase of German goods whenever practicable, and in view of these conditions France, Austria, and particularly England have largely increased their trade with this part of Russia.

Independently of the above statement, Warsaw, a growing city of nearly 800,000 inhabitants, is considered the center for the importation of goods from foreign countries. Foreign goods, and especially all kinds of machinery, when once adopted in Warsaw, spread rapidly over the Empire. Warsaw is only five hours by rail from the German boundary, and from there it is but a day's journey to the principal German seaports—Hamburg, Lübeck, Danzig, and Stettin—while St. Petersburg, through its severe climate, is much less accessible to the trade by sea.

Austria, England, and France have been very busy; their salesmen are continually on the spot, investigating the conditions of trade and making a careful study of local requirements. This should attract the attention of American manufacturers who desire to extend their export trade. I notice that great interest is expressed in goods of American make, and I am confident that there is in this section of Russia a large field for all kinds of American products. So far, the direct importation of American goods is very limited, because no energetic efforts have been made. With the exception of agricultural machinery, the few American goods that are on sale here come through the hands of Hamburg and Berlin commission houses. From conversations had with several large importing concerns in this city, I learn that it would be greatly preferred to avoid the "middleman" and to import direct.

Following is a list of American-made goods which are partly introduced or would find a ready sale in this city:

Wringing machines.

Meat-chopping machines.

Hair-clipping machines.

Typewriters.

Gramophones.

Safety razors.

Tools of all kinds for carpenter, locksmith, etc.

Galvanized-iron spoons (in large demand).

Machinery of all kinds and their parts.
Jewels (imitation) and chains.
Sticky fly paper.
Paper for fancy lamp shades.
Machine tools, especially labor-saving machinery.
Cotton and cotton waste.
Hunting rifles.
Hydraulic lifts.
Rubber shoes, light-weight, low.
Hardware, all kinds.
Agricultural machinery. (There is a special representative here.)
Automobiles for heavy loads.

In regard to automobiles for heavy loads, I am informed that a company is about to be organized in this city with a view to introducing these machines on a large scale, and that it intends to obtain offers from English, French, and Belgian manufacturers. The following concerns desire agencies for American goods: Bronislaw Oderfeld, 17 Ujasdowska Aleja, and Leopold Tennenbaum, 12 Leszno. So far as I can learn, they have a good reputation in this city. Direct correspondence with them is recommended.

There has probably never been a better opportunity for the introduction of American goods into this part of Russia.

WARSAW, *February 11, 1903.*

HERNANDO DE SOTO,
Vice-Consul.

THE YEAR'S RECORD IN GERMANY.

In Germany, as elsewhere, the month of January is the season for reviewing the business of the preceding year, in which balances are struck, dividends or deficits declared, and the annual reports of corporations and chambers of commerce published simultaneously with the official statistics of foreign commerce. From all these sources of information, which have been made accessible during the later days of January, it becomes possible to deduce some direct and interesting data concerning the present situation and immediate prospects of business in this country.

It is noticeable that bank dividends and balances for 1902 show a general and decided improvement over those of the preceding year. The storm period of wrecks and humiliating disclosures in banking operations was passed in 1901. Since then, an austere conservatism has ruled, new investments have been few, money abundant and cheap, and the values of State and other stable securities have stood high and firm. There is a general complaint in banking circles against the oppressive effect of the bourse laws, which tax and control the business of stock and produce exchanges, and an earnest

and unanimous plea is made for a radical revision of those statutes. The textile industries, especially the woolen branch, make, on the whole, the most favorable showing of the year. The iron and steel situation, which was depressed and discouraging during the first six or seven months of the year, was saved, in a measure, by heavy shipments to the United States during the autumn and early winter months, although some of such sales are known to have been made at prices which barely exceeded the cost of production and shipment. In the departments of machinery and electrical apparatus and supplies there was little of comfort in the record of the year, except that toward its close several of the leading electrical companies pooled their interests in such a manner as to reduce working expenses and avoid in future needless competition. Since the 1st of January, the electrical situation has definitely improved under the stimulus of certain important orders which have been placed at home and in South America. The stocks of certain companies have advanced several points during the past ten days, but whether the recovery is justified by facts and will be permanent remains to be seen.

The annual report of the Leipzig Chamber of Commerce probably states the case accurately when it says in general of the business year 1902 that while a few branches of manufacture and trade experienced a partial recovery, the year as a whole belonged to the period of overproduction, collapse, and panic that began in the summer of 1900, and has entailed the fatal condition which still exists, viz, prices of food and raw materials which are above all logical relation to the market values of finished products. This, with the difficulty of making collections and the persistence of purchasers in demanding long credits, renders this a difficult and trying time for manufacturers who are trying to keep their factories open and their operatives together until the return of better times.

THE FOREIGN COMMERCE OF 1902.

The statistics just published show a slight decrease in imports and increase in exports over those of 1901. Stated in metric tons, the imports and exports of the past five years have been:

Calendar year.	Imports.	Exports.
	<i>Metric tons.</i>	<i>Metric tons.</i>
1898	42,729,838	30,094,318
1899	44,652,288	30,403,226
1900	45,911,799	32,681,746
1901	44,304,852	32,363,404
1902	43,340,339	35,029,716
Decrease.....	964,513	
Increased		2,666,222

Of the 43 most important numbers or groups in the import-tariff list, 22 show an increase and 21 a decrease as compared with the record of 1901. In respect to exports, 34 numbers show an increase, while only 9 record a slight falling off, in comparison with the previous year. The loss in imports was mainly in materials like lumber, ores, iron and steel manufactures, machinery, and coal, the consumption of which measures accurately the activity of German industries. Wool and cotton, on the other hand, show the slightly increased import that would naturally be expected from the relatively prosperous condition of the textile industry.

In considering the value of exports and imports, it should be remembered that the original official statistics are only approximate, being estimates based on a mean unit value for each article during the year. The statisticians know, for example, how many tons of any given material or product were imported or exported during the year, and by assuming an average market price, they reach a close estimate of the aggregate value, but such estimates have to be afterwards corrected by comparison with the actual prices which ruled during the year. As prices of many articles sensibly declined during the last half of 1902, it is likely that the final revision will bring some reduction in the values of foreign trade now published, which show the following comparison with those of the previous year:

Year.	Imports.	Exports.
1901	\$1,358,900,000	\$1,093,856,000
1902	1,359,456,000	1,191,666,000
Increase	556,000	97,810,000

This important increase in exports is confined almost wholly to a dozen articles, viz, silk, woolen and cotton goods, precious metals, hair, hops, manufactures of caoutchouc, copper, and leather, colors, works of art, paper, and coal. So marked an increase in exported values as this, while the values of imports remained nearly stationary, would at first thought indicate a healthful and encouraging improvement in Germany's foreign-trade balance. It is easy and natural to assume that the more a nation exports and the less it pays for imports the more prosperous and self-sustaining it must be. This is substantially the case with a country like the United States, whose imports are to a great extent manufactured products; but in a nation like Germany, where an overwhelming proportion of all imports are the indispensable raw materials of manufacture and the cheap food materials which are essential to economical labor, the decline of imports is a signification of industrial paralysis which is by no means encouraging.

GERMANY'S TRADE WITH THE UNITED STATES.

The consolidated return of exports to the United States, as declared at United States consulates in Germany, was forwarded to Washington at the close of the year,* and shows that the aggregate values of such shipments, which were \$83,191,015 in 1898 and \$99,616,731 in 1901, rose to the record figure of \$114,495,502 in 1902. These statistics, although the most reliable that are as yet available, are, as usual, below the actual fact, for two reasons: First, they represent only the sum of invoices declared at consulates, which do not include shipments under \$100 in value, which have greatly increased since the postal-package treaty of 1900 went into effect; and, secondly, values so declared by shippers are never above, but sometimes quite below, the market prices of the merchandise.

The notable increase of \$14,878,770 in the German exports to the United States last year over those of 1901 was distributed through 25 consular districts in this country; while only 7 showed a decline. The most notable increase was at Düsseldorf, viz, from \$1,277,553 in 1901 to \$4,080,356 in 1902, a result due wholly to the enormously increased export of pig iron, rails, structural steel, etc., to the United States during the last four months of the year. Chemnitz, Barmen, and Plauen, where the exports are largely textile merchandise, all show an advance of about 50 per cent over the shipments of the previous year, while the falling off of sugar exports shows in the returns from Hamburg, Stettin, and Magdeburg, the decline at the latter consulate being \$1,935,521 during the year. The whole German raw-sugar export to the United States fell away from 117,603 tons in 1901 to 82,590 tons in 1902, and the import of American wheat, which had jumped from 455,933 tons in 1900 to 1,237,147 tons in 1901, declined under the influence of a better home crop to 1,019,414 tons in 1902.

The most striking fact which is suggested by the record of 1902 is the priceless value to Germany of the export trade which her manufacturers and merchants had, with the aid of the great and growing German mercantile marine, built up and organized on a secure basis during the prosperous years since 1893. Whatever divided counsels may have since prevailed in respect to the fiscal policy of the Empire, every broad-minded economist knows that the material progress and greatness of Germany have been due to her industries and commerce, and that her sheet anchor in the stormy weather of the past two years has been her foreign trade.

FRANK H. MASON,
Consul-General.

BERLIN, *February 6, 1903.*

*See ADVANCE SHEETS No. 1575 (February 19, 1903).

THE POTATO AS A SOURCE OF WEALTH IN GERMANY.

In a report dated February 12, 1902 (ADVANCE SHEETS No. 1288, March 13, 1902), an account was given of a special exposition, then in progress in Berlin, of apparatus, machinery, and products which typified the manufacture and technical uses of alcohol in Germany. That exposition was held under the joint management of two national organizations, viz, the Union of Alcohol Producers and the Association to Promote the Industrial Uses of Alcohol.

This year a similar exposition is in progress in the same location and under practically the same management, but with a much wider scope, in that it now includes all that relates to the culture and economic use of the potato (1) as human food, (2) as feed for domestic animals, (3) as material for the manufacture of alcohol, and (4) as material for starch and subsidiary products—starch sugar, sirup, dextrin, etc. Whereas the exhibition of 1902 covered one varied and interesting phase of the economy of the potato in Germany, the display of 1903 thus includes four distinct departments, which collectively cover and illustrate with surpassing completeness and interest one of the most important branches of German agriculture and its dependent industries.

POTATO CULTURE IN GERMANY.

The cultivation of the potato on a large scale in this country dates from the latter part of the eighteenth century, and was mainly due to the influence of Frederick the Great. Its present importance will be inferred from the fact that in the year 1901, out of 26,250,000 hectares (about 65,625,000 acres) of arable land in the German Empire, 3,300,000 hectares, or 12.5 per cent of the whole, was planted with potatoes. For every 10,000 inhabitants of the Fatherland there were planted in 1900 160 acres of potatoes, as against 112 acres in Austria, 98 acres in France, 31 acres in Great Britain and Ireland, and 34.8 acres in the United States. The total area and product of potato culture in Germany have ranged during recent years from 32,329,000 metric tons, grown on 7,631,975 acres, in 1896 to 48,687,000 tons, grown on 8,297,080 acres, in 1901.

The sandy plains of northern and central Germany are by nature well adapted to potato culture, and this adaptability has been supplemented in recent years by an elaborate scheme of scientific fertilizing and cultivation, organized by the Bureau of Agriculture and continued experimentally from year to year until the whole system of planting, cultivating, and harvesting has been reduced to exact,

practical methods. At the present exposition there are displayed round the gallery of the main building a collection of more than 600 samples of potatoes, grown at 28 farms and experiment stations in different parts of the Empire, each of which shows by this exhibit what has been accomplished with the 15 or 16 varieties of potatoes that are now accepted as standard in Germany. Each sample includes a peck of potatoes, not selected but taken from the run of the pile, washed, analyzed, and labeled with the yield per hectare and the percentage of starch contained. Additional notes state the location of the fields, nature of soil, kind and quantity of fertilizer used, date of planting and harvest, etc.—a complete history of the whole process of cultivation and its results.

Through such means, the general yield per hectare has been raised by not less than 38 per cent during the past ten years. The increase in the harvested crop from 1896 to 1901 was 16,350,000 tons, valued at 400,000,000 marks (\$95,200,000). Instances are reported where, by intensive cultivation under favorable conditions, 14.4 metric tons of potatoes have been grown on an acre of land, while 8 and 9 tons per acre are not unusual in practical agriculture.

As a result of these two fundamental conditions—the abundance of land adapted to potato culture and the steady increase of product through consummate scientific methods—the crop had reached in 1901 the danger point of overproduction; that is to say, the harvest of 48,687,000 tons of potatoes raised the serious problem of how to dispose of them without waste or so depressing the market price that there would be left in it no profit for the farmer. The first result was a tremendous increase in the production of potato alcohol during the autumn and winter months, a consequent oversupply of raw spirits on the market, and the exposition of February, 1902, to illustrate, promote, and extend by all practical means the use of denaturized alcohol for technical and industrial purposes. The exposition has been repeated this year, and, as already indicated, on a broader and more comprehensive scale in that it now covers not merely the alcohol industry, but the cultivation and the several principal uses of potatoes, which may be concisely summarized as follows:

(a) *As human food.*—It is estimated that, of the entire annual potato crop of Germany, one-half is consumed directly as human food. Germans have long been in the foremost rank as potato eaters. Among a very large proportion of the laboring classes, particularly in villages and country districts, potatoes and dark bread are the principal staples of daily subsistence. For the reason that the use of potatoes as food has long been so fully developed, it is impossible to increase much by any artificial means the per capita rate of consumption, the only extension in that direction being based

on the fact that the natural growth of population adds each year about 80,000 new potato eaters to the census of the Empire. To this may be added the effect of recent improvements in desiccating shredded and sliced potatoes, whereby they have become a staple article of food for the German navy and army, at home and abroad, and for the colonists in Africa and Asia.

(b) *As feed for domestic animals.*—Here the potato plays a large and steadily increasing rôle in the economy of German farming and meat production. Maize is not to any extent a product of Germany; such as is used for fattening stock must be imported. In so far, therefore, as the potato can replace corn and other cereals as feed for animals, it contributes directly to reduce the sum of necessary imports. As feed for cattle, hogs, sheep, and poultry, potatoes are used, both raw and steamed. But as a result of their large natural percentage of water, they deteriorate in storage and lose a large proportion of their nutritive properties after germination begins. The season of advantageous potato feeding is therefore limited to four or five months each year—from the harvest in October or November until the potato begins to sprout in the spring. This fact has given great importance to the subject of conserving potatoes by drying and other means for feeding purposes. As any practical process of preservation must operate chiefly through a reduction of the water in potato pulp, the problem has been opened to competition by a union of the Agricultural Department, the Alcohol Verein, and various agricultural societies, which offers a series of prizes amounting to 30,000 marks (\$7,140) for the best potato-drying apparatus, the one condition imposed being that each machine or system admitted to the competition shall be capable of so desiccating fresh potatoes that they can be preserved in condition for stock feeding until the next year's crop can be ripened, at an operating cost not to exceed 5 cents per centner (110 pounds avoirdupois). It is stated that twenty-two contestants have entered this competition, and two of their machines are displayed as exhibits in the present exposition. As a measure of the general nature of this competition, it may be stated that one of the competing systems, the "original Rassmus dryer," manufactured at Magdeburg, is guaranteed to dry 20 tons of potatoes, beets, beet leaves, or other wet fodder in twenty-four hours. It is a vacuum evaporator which is worked with exhaust steam from a high-pressure engine, or, if that is not available, with live steam direct from a boiler. The whole subject of drying potatoes is of vital interest, since on the success of improved methods of desiccation will depend the extent to which their use as an all-the-year-round forage material can be developed.

(c) *Technical products of potatoes.*—Aside from alcohol, which forms

a special category by itself, these are mainly starch, starch sirup, potato flour, dextrin, and starch sugar. In all these specialties the increase of both production and export has been rapid and steady during the past ten years. The exports of dextrin and potato flour to the United States from three factories in the district of Berlin alone reach a total value of nearly \$200,000 per annum, and the whole German export of these products during the past three years shows the following striking development:

<i>Exports of potato flour and starch.</i>		Tons.
1900.....		21, 792
1901.....		25, 444
1902.....		45, 970

Of the exports of potato flour and starch, 3,127 tons were shipped directly to the United States in 1902.

<i>Exports of dextrin.</i>		Tons.
1900.....		10, 167
1901.....		11, 152
1902.....		14, 047

Dextrin to the amount of 2,351 tons was shipped to the United States in 1902.

An incidental advantage of this group of manufactures is that it leaves a large percentage of refuse material, which is excellent food for cattle and swine. There are not less than 300 potato-starch factories in Germany, which are distributed mainly throughout Silesia, Brandenburg, and Mecklenburg. The latest convenient statistics are those for the fiscal year 1897-98, when the output was 78,000 metric tons of dry starch, valued at 15,000,000 marks (\$3,570,000). To this was added 7,200 tons of starch sugar and 19,000 tons of dextrin, so that the total value of the year's output of starch products was about 30,000,000 marks (\$7,140,000). Incomplete statistics for the working year 1901-2 show that the product of starch sugar was 9,941 tons and of starch sirup 49,269 tons, and that the amount of potatoes consumed as raw material for starch, sirup, sugar, and dextrin was not less than 700,000 tons. The exports of such products in 1902 were 46,000 tons of dry potato starch, 10,600 tons of starch sirup and sugar, and 14,047 tons of dextrin. Great Britain is the largest purchaser of German potato starch, her imports last year being 23,827 tons, while 3,127 tons were taken by the United States and the remainder was divided between Denmark, Italy, Finland, Switzerland, and Spain.

THE EXPOSITION OF 1903.

This comprises 105 numbers, each of which includes all the exhibits—which may range from two or three to twenty or more—that are displayed by one firm, company, or individual as exhibitor. The

general scope of the exposition will be indicated by the fact that of the 105 numbers the first 14 are devoted to samples of potatoes and machinery used in their cultivation. Group II, Nos. 15 to 44 inclusive, is devoted to the industries of desiccating and otherwise preparing potatoes for human food or forage and the manufactures of starch, dextrin, starch sugar, etc.; while Group III, Nos. 45 to 105, covers the manufacture and multiform uses of alcohol for technical and industrial purposes.

This last and most important category is upon the same lines as the exposition of 1902, and gives, therefore, an opportunity for direct comparison. Everywhere the exposition of this year conveys an impression of progress and improvement. The motors are about the same in number as a year ago, but all the great makers—Daimler, Dürr, Deutz, and “Gnom”—are here with their latest and most perfect models, which embody the most advanced principles in respect to simplicity of construction, condensed proportions, silent smoothness of operation, and the completeness with which the working parts are sheathed and shut in from dust, danger of contact, or loss of heat energy by radiation. As a typical example that combines in the highest degree the latest progress in construction of spirit engines, there is given herewith (see illustration) a photograph of a 50-horsepower alcohol engine invented by Director Boris Loutzky, of the Russian marine engineering service, and built by the Daimler Motor Company at Marienfelde. This was one of the most notable exhibits at the recent exposition and attracted the special attention of the German Emperor, whose enthusiastic interest in all that relates to the use of alcohol for motor purposes on land and sea is well known.

It is perhaps less generally known that Russia is following in the same direction; that for two years past the navy of the Czar has been using alcohol boat motors up to 300 horsepower with highly successful results. More recently the internal-revenue tax has been removed from Russian alcohol when used for industrial purposes, and the Government has adopted the definite policy of making the potato, through conversion into denaturized spirits, a source of increased wealth to the peasantry. The engine is shown in the illustration coupled directly to a generator, but it may be used for marine or any factory purposes for which a motor of that size and horsepower is adapted. Its efficiency will be inferred from the tests, which showed its alcohol consumption to vary from 0.45 to 0.5 liter* per horsepower hour. At 650 revolutions per minute it developed about 61 horsepower and ran with such steadiness that the difference between running light and with full load was only 3 per cent.

* 1 liter = 1.05 quarts.

This regulation is accomplished by means of a centrifugal regulator, which, by creating a vacuum in the cylinder in proportion to the power exerted by the motor, regulates the consumption of fuel. Like many other alcohol motors, this is started and warmed up with gasoline, and a lever changes the supply from gasoline to alcohol as soon as full speed has been attained. The ignition is by electric spark, and, as a provision against all contingencies, both magneto-electric and accumulator currents are provided and the former utilized by means of an inductor, the accumulator serving as a reserve in case the galvanic spark should fail. The moment of ignition, which is of great importance in explosion motors, can in this engine be adjusted to occur at the most advantageous part of the stroke, thus securing the maximum effect.

The department of lighting apparatus includes a vast and varied display of lamps, chandeliers, and street and corridor lights, in which alcohol vapor is burned like gas in a hooded flame covered by a Welsbach mantle. Under such conditions alcohol vapor burns with an incandescent flame which rivals the arc light in brilliance and requires to be shaded to adapt it to the endurance of the human eye. There has been since last year a great improvement in the artistic models and finish of lamps and chandeliers for alcohol lighting. At the beginning they were simple and of rather ordinary appearance, but now they are up to the best standard of modern fixtures for gas and electricity, with which alcohol lighting is now competing with increasing success in this country.

Similarly attractive and interesting is the large display of alcohol heating stoves, which, for warming corridors, sleeping rooms, and certain other locations, are highly esteemed. They are made of japanned-iron plate in decorative forms, with concave copper reflectors, are readily portable, and, when provided with chimney connections for the escape of the gases of combustion, furnish a clean, odorless, and convenient heating apparatus.

Cooking stoves of all sizes, forms, and capacities, from the complete range, with baking and roasting ovens, broiler, etc., to the simple tea and coffee lamp, were displayed this year in endless variety. This entire department—the use of alcohol for household purposes—is ably and efficiently managed by the Central Association for Alcohol Distribution, which keeps a large depot in Berlin and other German cities, where every kind of alcohol lamp, burner, heater, cooking apparatus, toilet fixture—everything that can use denaturized alcohol—is kept on sale at retail or to the trade. As another example of the efficiency of this organization may be cited its system of alcohol distribution to rural districts as a convenient fuel for motor purposes. Since the inception of this movement, it

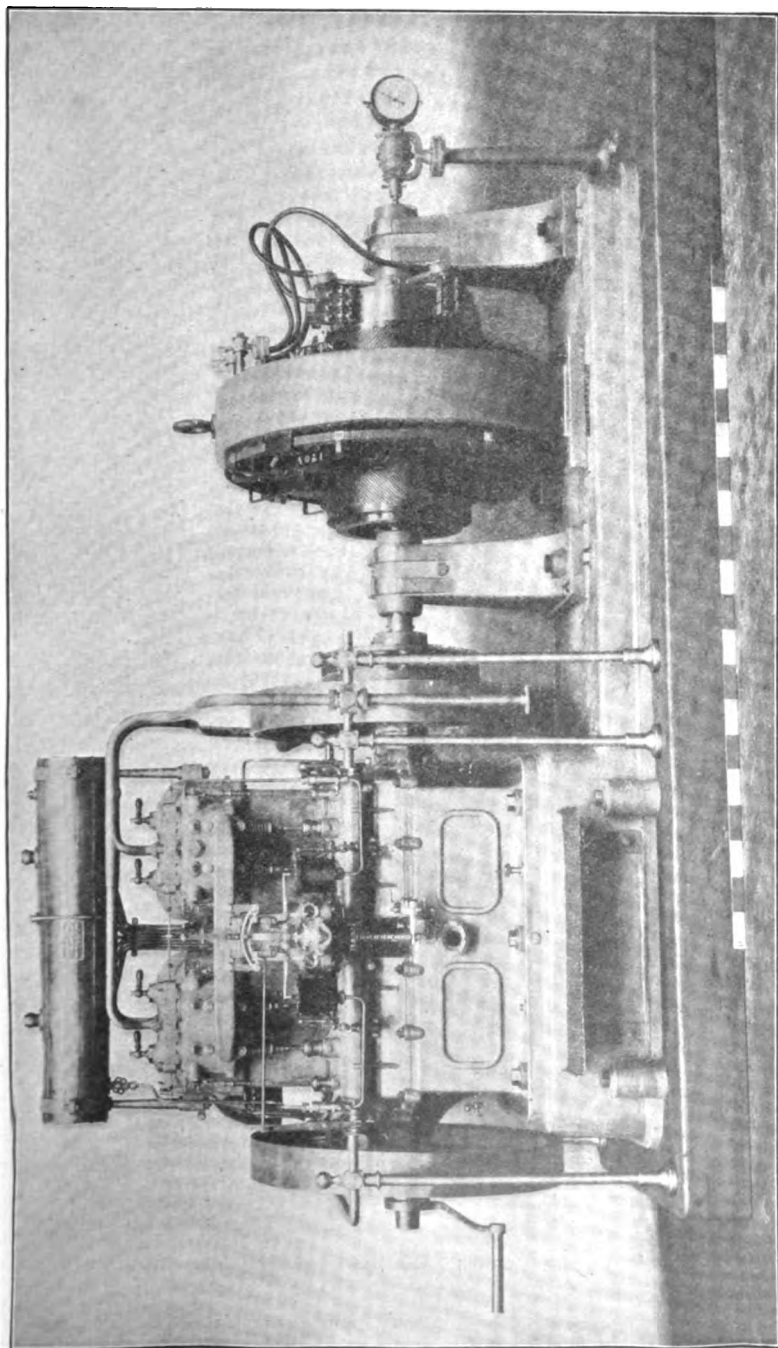
has been a point of extreme importance to replace the steam locomobiles for thrashing, grinding, fuel cutting, and other agricultural purposes with alcohol motors, for which are claimed the important advantages of immediate readiness for operation, no coal or water to be provided, no fireman needed, freedom from smells or danger of fire, and, finally, greater economy of maintenance. But in order to promote the substitution of spirit motors for steam and horse power, it was necessary to make alcohol cheap and easy to obtain by farmers in districts where no raw spirit is made. To meet this requirement, the Central Association undertakes to deliver free at any railroad station in Germany denaturized alcohol of 90 per cent purity, in quantities of 180 to 200 liters, for 15, 16½, and 17½ pfennigs per liter (approximately 15, 16, and 17 cents per gallon), according to the material with which it is denaturized. As the consumption of a modern alcohol motor for farming purposes is about 0.5 liter (costing about 2 cents) per horsepower hour, it will be apparent that in this country at least benzine and petroleum have met a serious competitor as fuel for motor purposes. The Hamburg-American Steamship Company has in service a harbor-inspection launch which, with a 23-horsepower spirit engine, makes a speed of 10 knots, and preparations are being made to greatly extend the use of such motors in the launches and ships' boats of the German navy.

The one department of the recent exposition which has fallen below general expectation has been that of alcohol motor vehicles, but this is for the reason that the annual exhibition of the German Motor Carriage Association is to open here on the 8th of March, and the builders of motor vehicles for pleasure, business, and military purposes are naturally holding their latest and best work for that event. The German Government has instituted an elaborate competition with valuable prizes for the best alcohol-motor vehicle for military purposes, and the tests of the several competing carriages will take place during the coming spring. In this way, it is arranged to equip the army with motor vehicles that can not be put out of service by a blockade of imported petroleum products in time of war.

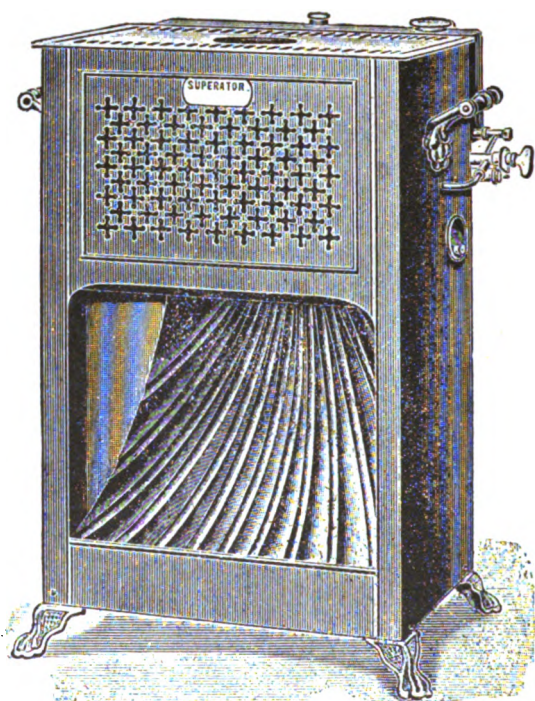
Finally, the exposition of this year confirms and reenforces the impression made by the display of 1902 that the law of 1887 governing the manufacture and use of untaxed alcohol for technical purposes was one of the wisest and most farseeing enactments in the legislative record of the Empire. For every dollar of direct revenue that was thus sacrificed, the people have profited manyfold by the stimulus thereby given to potato culture and the important uses of cheap alcohol in chemistry and the industrial arts.

FRANK H. MASON,
Consul-General.

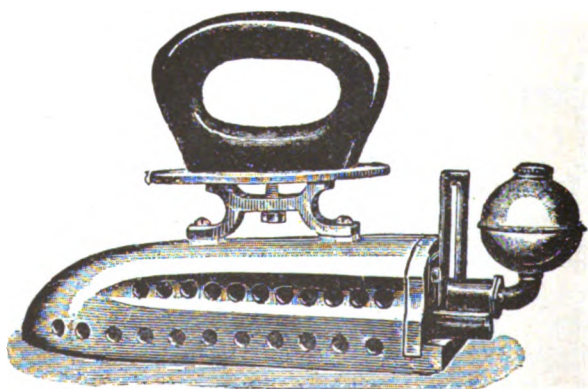
BERLIN, *February 16, 1903.*



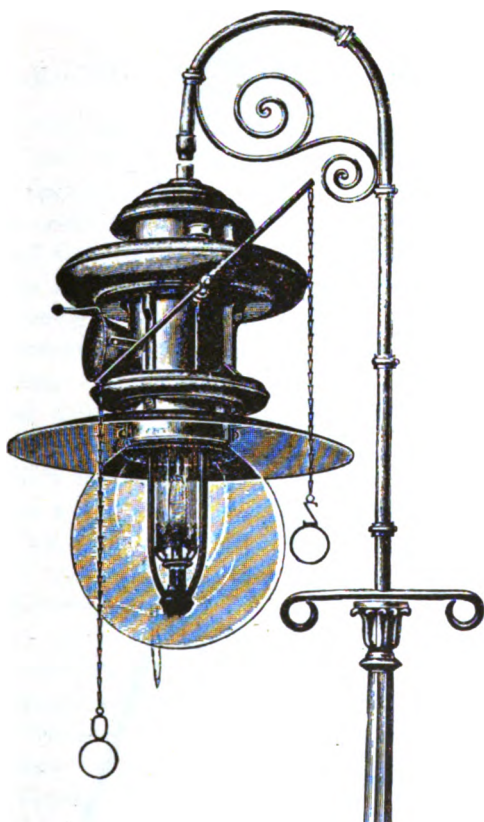
50-HORSEPOWER LOUTZKY-DAIMLER ALCOHOL MOTOR.



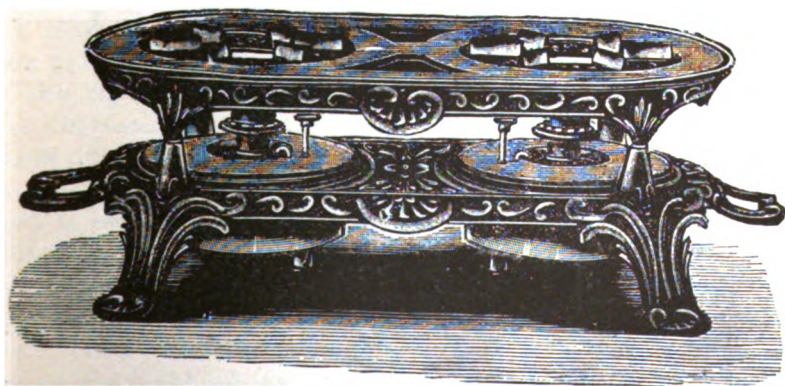
AN ALCOHOL HEATING STOVE.



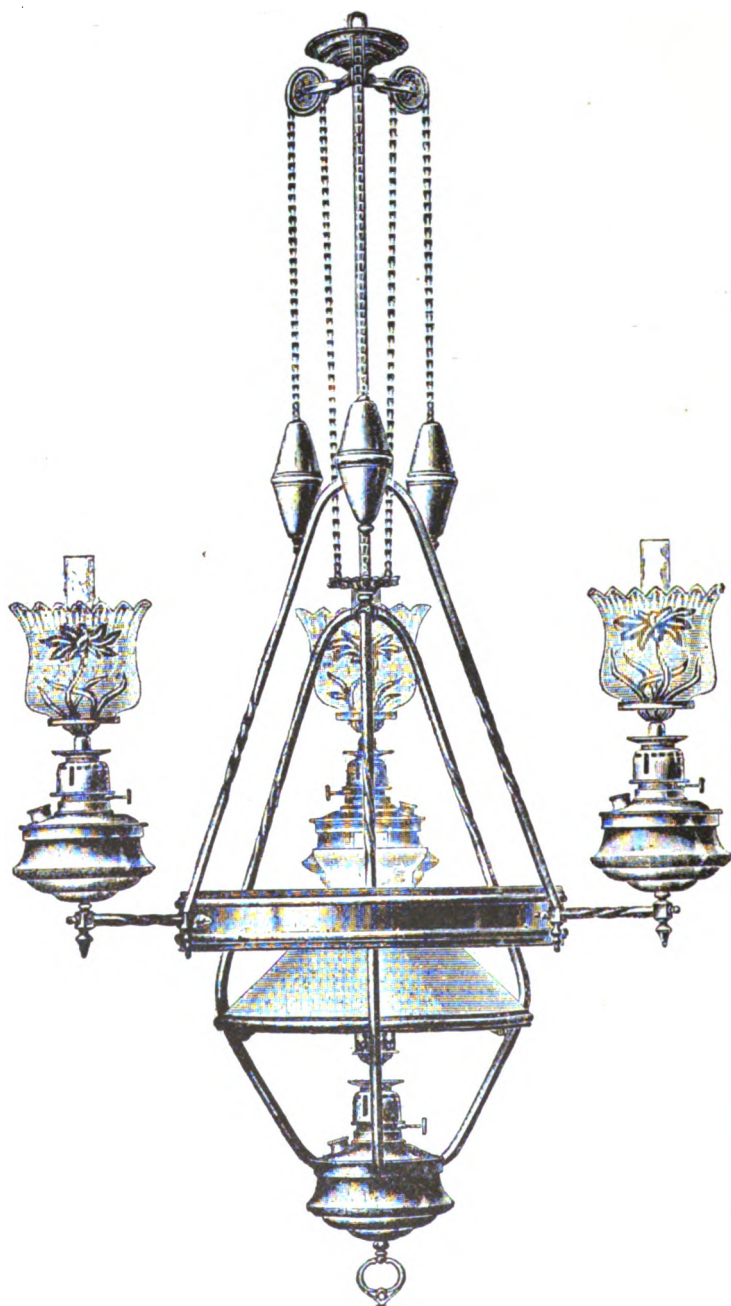
SELF-HEATING ALCOHOL FLATIRON.



ALCOHOL STREET LAMP.



SUMMER ALCOHOL COOKER.



CHANDELIER FOR ALCOHOL LIGHTS.

USE OF ELECTRICITY ON GERMAN VESSELS.

The incomparable development of the German shipbuilding industry during the past twenty years has called forth all the ingenuity of the technical engineer. That Germany to-day possesses the fastest vessels which cross the Atlantic is a triumph due chiefly to the skill of the trained machinist. In no merchant marine is electricity used in connection with all the latest inventions to a greater extent than on German vessels. Its application to the comfort and safety of ocean travel presents one of the brightest chapters in the history of modern shipbuilding.

The *Kronprinz Wilhelm*, the latest express steamer afloat, furnishes the best example of the use of electricity at sea. All the cabins have not only electric lights and call bells, but are fitted up with telephones as well. The first-class cabins on the promenade deck and the dining room are heated by 104 electric ovens. Electricity is applied to 40 small and 19 large motors, as well as to many cranes and ventilators.

The power for the motors from which the electricity is derived for lighting and other purposes is generated by four independent dynamos. Connected with the dynamos are four compound steam engines. Three dynamos are situated behind the engine room between the two huge propelling screws. They are protected by water-tight bulkheads and are separated from the engine room and piston rod by solid partition doors. The fourth dynamo (fig. 1) is located in a large niche in the engine room, above the water line and on a level with the main deck.

An interesting feature of the application of electricity on ship-board is the so-called Schotten telegraph, or bulkhead telegraphy. In the moment of danger caused by a collision, this telegraph enables the captain on the bridge to see whether all the water-tight doors are closed or not. On board the *Kronprinz Wilhelm*, there are 40 such doors, 21 of which are electric trap contrivances, which fall into place at a moment's notice. There is a water-tight apparatus joined to each one of these doors, which is connected by wire with a tableau on the commanding bridge. This tableau shows the captain a complete plan of all the decks, and every time a trapdoor falls into place he is apprised of the fact by the lighting of an electric lamp. These lamps are brought into position exactly behind the holes on the bulkhead (fig. 2) or plan of the decks, so that a glance is sufficient to know if the doors are closed or not.

In case of danger, the ship's crew receives the alarm by means

of 36 electric bells, which are distributed throughout the vessel. These bells are divided into two electric-current circles. The 12 bells of the first division are located in the boiler, machine, dynamo, and steege rooms—that is, in every place where a water-tight trap-door is situated. The 24 bells of the second division are located throughout the entire ship and serve to summon the whole crew when necessary. The alarm apparatus is fed with 100 volts directly from the engine room. The whole outfit was constructed especially for the *Kronprinz Wilhelm*, and is entirely waterproof in every respect.

The fire-alarm signals are similar to those above described. The moment a fire breaks out, it is exactly located on a chart in the pilot room by means of an electric lamp. There are 13 electric fire alarms distributed throughout the ship.

The entire electric outfit on board the *Kronprinz Wilhelm* was put in by the Union Elektrizitäts Gesellschaft, in Berlin. It took 70 men six months to complete the work.

Figure 3 shows powerful electric cranes in use on the *Kronprinz Wilhelm*.

EIBENSTOCK, *January 24, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

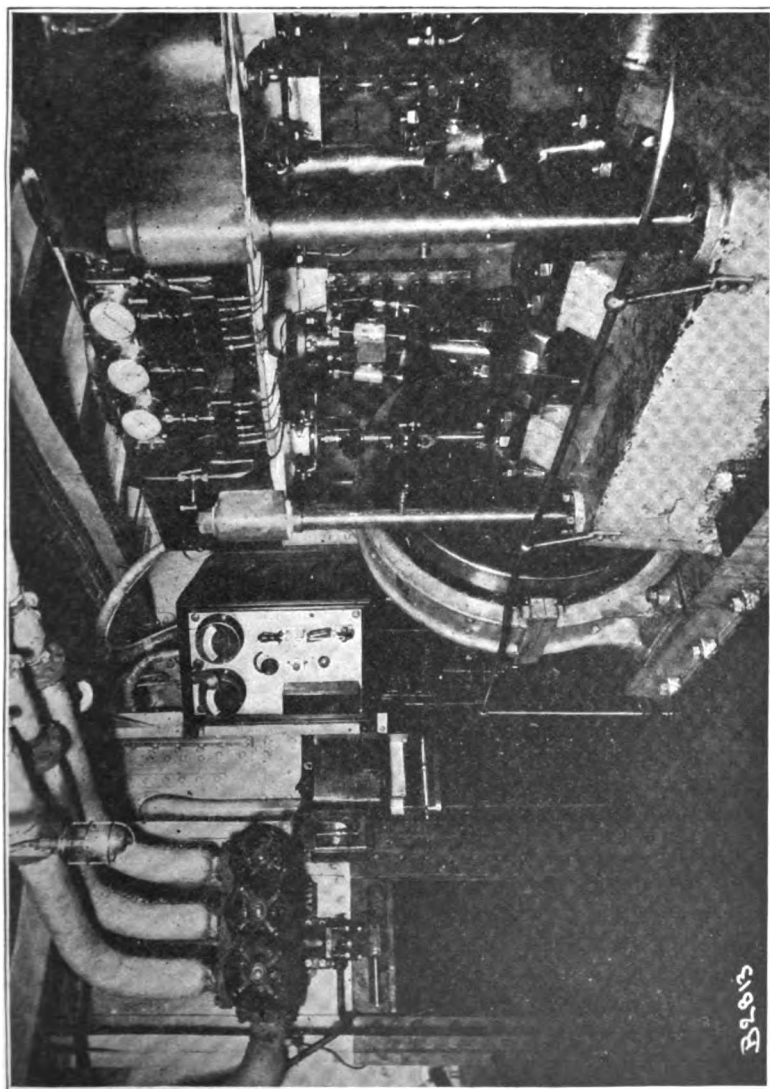


FIG. 1.—ENGINE-ROOM DYNAMO.

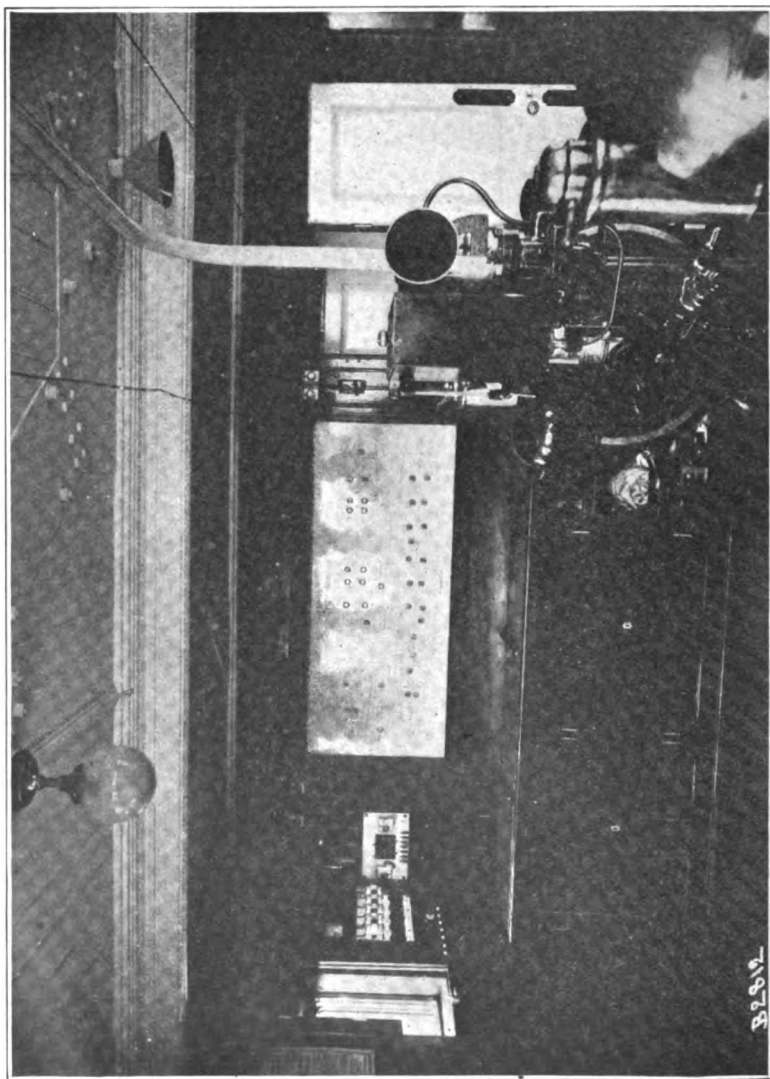


FIG. 2.—BULKHEAD TELEGRAPHY.

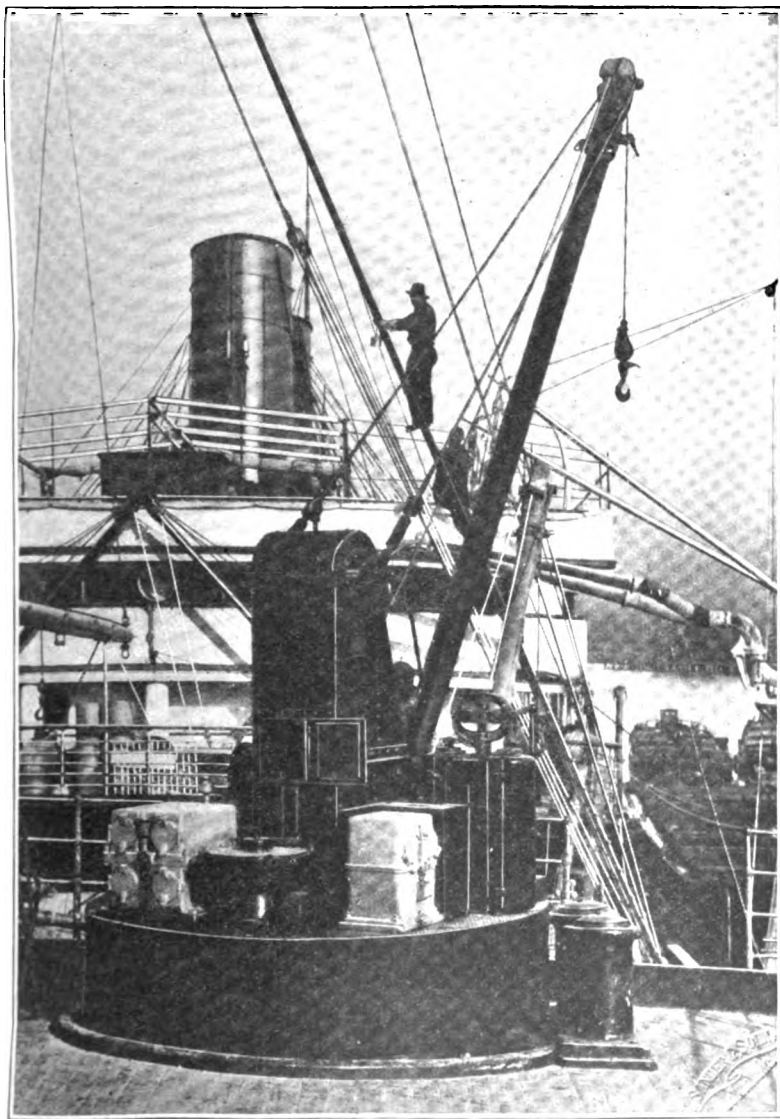
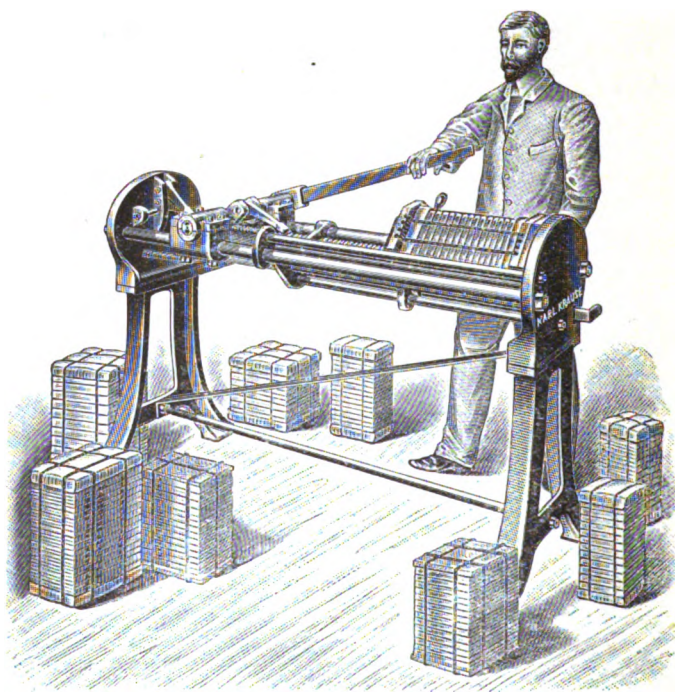


FIG. 3.—ELECTRIC DECK CRANE.

LATEST BUNDLING PRESS IN GERMANY.

The accompanying illustration shows a new bundling press which is finding favor all over Germany. Its construction is entirely of iron and it is manufactured by the firm of Karl Krause, Leipzig. The machine is solidly built, and ties and packs books, manuscripts, etc., simultaneously. The workman in charge is able to control the



pressure by means of a lever. The action of the gearing on this press is so easy that one man without exertion can effect the highest admissible pressure. The platens are provided with grooves to permit the stringing of books, etc., while pressing them.

EIBENSTOCK, *February 21, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

GERMAN EMBROIDERING APPARATUS.

In answer to an inquiry from an American manufacturer,* I send the following description of the Kobes embroidering attachment (Stricklader)—a mechanical device to be attached to the ordinary or power loom, Jacquard or other—by which it is possible to embroider almost any design on the surface while weaving the cloth.

It consists of two sets of needles or thread carriers attached to a longitudinal moving rack, which is fitted to the uprights of the batten, immediately in front and just above the reeds of the loom, and is counterweighted in such a manner that it rises and descends by means of cords operated from the Jacquard cards.

The embroidery yarn or thread for the needle is supplied from an auxiliary beam attached to the upper part of the loom frame between the harness and the batten, on which yarns can be wound direct or spooled yarns used if desired.

When the rack is lowered, the needles pass down in front of the reeds, carrying the embroidery threads into and between the threads of the warp, where they are held while the bobbin, carrying the weft thread, passes through and under the warp shed, but over the embroidery threads, thus weaving the same into the goods, while the swing of the batten drives the weft and embroidery threads into the previously woven part. The rack when released rises to its normal position, where it is held until again brought into play.

Palls attached to levers rotate the small toothed wheels that are geared into the rack, thus driving the needle bar right or left. The spacing and the distance the needles carry in either direction are regulated by the Jacquard card or operator.

The two bars to which the needles are fixed oscillate in either direction, in harmony or otherwise, thus making it possible to embroider borders or designs on each edge of the goods at the same time. The needles being movable, the distance between the threads can be governed at will, and they are so arranged that there is scarcely any limit as to the size of yarns they will carry, thus making the use of the finest silks or of the coarsest knotted yarns possible. In making designs with this apparatus on heavy, double (or two-faced) cloth, no sign of the embroidery is visible on the under side.

By the courtesy of a local manufacturer, I had an opportunity of seeing the apparatus in use, and was agreeably surprised at the simplicity with which it can be applied to any loom and the speed

*To whom ADVANCE SHEETS have been sent.

and faultlessness of its work. The mechanical principles of its construction are so simple that I can readily believe what the operator said—that it was easily managed.

I inclose herewith a rough drawing; also some samples which show the peculiarity of the weaving, but not the possibility of designs.*

The price asked for the apparatus here is 120 marks (\$28.56).

E. A. CREEVEY,
Consul.

GLAUCHAU, *February 10, 1903.*

MANUFACTURE OF QUARTZ GLASS IN GERMANY.

Under the heading "A new German industry," German papers state that the manufacture of quartz glass is rapidly developing in this country.

Quartz glass consists essentially of melted quartz, which is made into tubes and other articles. It is perfectly translucent. The initial experiments in the manufacture of the new glass were made in England, but a firm at Hanau, a few miles from Frankfort, was the first to place quartz-glass apparatus upon the market.

The manufacture of quartz glass is yet in its infancy, but has already shown symptoms of vigorous growth. While two years ago England led in its production, she has since been relegated to second place by Germany. Everybody who knows the properties of quartz glass admits that it will soon replace ordinary glass for many uses. It is only a comparatively short time since German manufacturers revolutionized the manufacture of optical glasses and obtained a monopoly of this important industry, and there is reason to believe that this will be repeated with quartz glass.

If quartz glass can be produced at a moderate price—and this seems to be quite possible where electric force can be cheaply obtained from water power—it will no doubt be largely employed, especially in the chemical and electrical industries.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *March 6, 1903.*

* Transmitted to inquirer.

SAND BRICKS IN GERMANY.

Owing to numerous inquiries from persons in the United States as to further details of the manufacture in Germany of bricks made of sand and lime and described in reports from the former consul at Magdeburg,* the present consul, Mr. W. A. McKellip, was led to investigate the matter and prepare an elaborate report, which he transmitted through the Department of State to a firm which had requested full details, together with pamphlets and other exhibits. In this report, Consul McKellip expressed the opinion that patented processes are not now necessary in Germany in making this kind of bricks, and quotes authorities to show that other systems are used, for which no licenses are required. The consul adds:

Whether the process for combining lime and sand can and will be perfected, so that artificial stone or brick can be produced in our country for building and other purposes as cheaply (in view of durability and other qualities) as clay brick or natural stone, is a problem yet to be solved; it has not been satisfactorily determined in Germany. If it can be done, I doubt not that the scientific ability and inventive genius of Americans will so improve existing methods of making this stone as to finally settle the question.

The consul concludes by saying that persons who are interested can obtain full details as to present methods in Germany by addressing manufacturers of brick machinery in Germany, who will cheerfully give the necessary information. Among these manufacturers, Mr. McKellip mentions the Krupp Works, of Buckau; Messrs. Roehrig & Koenig, of Magdeburg-Sudenburg; the Association of Manufacturers of Lime and Sandstone, of Charlottenburg; Brueck, Kretschel & Co., of Osnabruck; and Stahl und Eisen Aktien Gesellschaft, of Hoerde (Westphalia).

AGRICULTURAL FAIR AT CÜSTRIN, GERMANY.

It may be of interest to American manufacturers of agricultural tools and machinery to know that from June 5 to 14, 1903, an agricultural exhibition will be held in Cüstrin, a city situated 52 miles east of Berlin at the joining of the Oder and Warthe rivers. Cüstrin has about 13,000 inhabitants, and the suburb, where the exhibition will be located, is the crossing point of six different railroad lines—one of these, the Berlin-Königsberg line, being the connecting link between the German capital and the far eastern portion of

*ADVANCE SHEETS No. 990 (March 21, 1901) and No. 1286 (March 11, 1902).

the Empire. In the country round about Cüstrin and also in the neighboring provinces agricultural enterprise is widely carried on by farmers and landed proprietors, and American manufacturers should exhibit their best goods in order to secure a fair share of the trade in agricultural tools and machinery. The exhibition has the support of several important agricultural and industrial associations and is the more likely to be a success as it is, as far as I can find out, about the only one that will be held in Germany this year.

I learn that Mr. Max Schleusner, of Cüstrin 2, is a member of the exhibition committee, and further particulars regarding the exhibition will be cheerfully furnished by him to applicants.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *February 17, 1903.*

USE OF TILES IN GERMAN MEAT SHOPS.

Americans visiting Mannheim frequently comment on the attractive meat shops to be seen here. This attractiveness is secured largely by the use of ornamental tiles for floors, walls, and even ceilings and counters.

The tiles on the walls are similar to those used in bathrooms in the United States. They are generally of light shades, arranged in patterns of artistic design. The floors are also laid with tiles of different colors. These tiles, however, are unglazed and are heavier and of cheaper quality than those on the walls.

In one of the most attractive of these stores, the walls are of ivory-colored tiles, with panels of flowers and other designs. The counter, which runs along two sides of the room, is of the same ivory-colored material, ornamented in gold. It presents a rich, handsome appearance. Even the bookholders, scales, and gas fixtures are tiled. The general effect of the room is suggestive, above all, of cleanliness.

Stoneware furniture for stores is a novelty in Germany, and seems to be applicable especially to meat shops, fish and other markets, kitchens, sculleries, etc. The most important center for its manufacture in this country is Mettlach, where there are several large factories

H. W. HARRIS,
Consul.

MANNHEIM, *March 4, 1903.*

GERMAN RAILWAY STATISTICS.

The following statistics, showing the development of German railways during the past ten years, have been prepared by the imperial railway department. According to these figures, the mileage of standard-gauge roads amounted in 1891 to 42,325 kilometers (26,241.5 miles), and at the end of the year 1901 to 51,092 kilometers (31,677 miles). Of this mileage, 63.5 per cent was in trunk lines in 1901 and 36.5 per cent in branch lines.

To handle traffic on the standard-gauge roads, there were employed in the fiscal year 1901, 19,724 locomotives, 41 motor cars, 39,878 passenger coaches, and 419,990 baggage and freight cars. As compared with the fiscal year 1891, these figures show an increase of 33.4 per cent in locomotives, 45 per cent in passenger coaches, and 40.3 per cent in baggage and freight cars.

The receipts for the passenger service amounted in 1901 to 571,360,000 marks (\$135,983,680), as against 367,660,000 marks (\$87,503,080) in 1891, an increase of 55.4 per cent.

The passenger receipts were distributed among the different classes as follows:

Description.	1901.	1891.
	<i>Per cent.</i>	<i>Per cent.</i>
First class.....	4.34	4.48
Second class.....	22.15	26.05
Third class.....	48.29	48.59
Fourth class.....	23.2	18.4
Military.....	2.02	2.48
Total.....	100	100

The receipts for the freight service amounted in 1891 to 907,740,000 marks (\$216,042,120), against 1,251,700,000 marks (\$297,904,600) in 1901, an increase of 37.9 per cent. Of the total receipts, the freight receipts amounted to 68.66 per cent in 1901, against 71.17 per cent in 1891.

The number of railway officials and workmen employed amounted to 546,211 in 1901, an increase of 123,000 persons, or 29.1 per cent, as compared with 1891. The salaries and wages paid these officials and workmen in 1901 amounted to 756,110,000 marks (\$179,954,180), against 502,490,000 marks (\$119,592,620) in 1891, showing an increase of 50 per cent.

WALTER SCHUMANN,

MAINZ, February 17, 1903.

Consul.

BREMEN SHIPPING BUSINESS IN 1902.

Last year was the most successful in the history of the shipping business of Bremen. While the profits accruing to the shippers and shipowners were probably unsatisfactory, the tonnage brought to this port direct by ocean-going vessels of all kinds for the first time went beyond the million mark.

As is well known, the real seaport of Bremen, until a few years ago, was Bremerhaven, located at the mouth of the River Weser, about 35 miles from this city. This harbor is one of the best on the coast, and is noted for being easily accessible from the North Sea, and for being free from ice even in the coldest winter. That it is of no mean importance is patent from the fact that in the year 1901 there were entered and cleared at this port 1,534 vessels of 1,450,740 registered tons, and in 1902, 1,577 vessels of 1,443,790 registered tons.

Formerly it was impossible for craft drawing more than from 4 to 6 feet of water to come up to Bremen, especially in dry seasons and prevailing high winds; and as ocean steamers grew larger, requiring deeper water for navigation, Bremen seemed doomed to become practically an inland town. It was then that this comparatively small city, with scarcely 150,000 inhabitants, determined upon making a heroic effort to regain its former position among the seaports of the world. A large sum of money was appropriated for the purpose of deepening and straightening the channel of the River Weser all the way to Bremerhaven. It was a gigantic undertaking, but it was accomplished with such success that the river became navigable for vessels drawing from 16 to 18 feet of water. A commodious free harbor was also built, where vessels from all parts of the world may now be daily seen loading and discharging their cargoes. The following table of ocean-going vessels shows the wonderful growth both of the traffic and tonnage at this port:

Year.	Vessels.	Tonnage.
	Number.	Tons.
1880	993	62,298
1890	1,137	373,404
1895	1,731	651,976
1900	2,108	895,809
1901	2,140	933,298
1902	2,273	1,101,279

Bremen thus possesses two seaports, each handling more than a million tons.

HENRY W. DIEDERICH,

BREMEN, *February 18, 1903.*

Consul.

INCOMES AND INCOME TAXATION IN PRUSSIA.

According to the latest taxation reports, the number of Prussian millionaires* has increased from 6,016 in 1899 to 6,601 in 1902, or 9.7 per cent. Of these, 4,257 persons had between 1,000,000 and 2,000,000 marks (\$238,000 and \$476,000) and 2,344 persons more than 2,000,000 marks. Of these 2,344 persons, 1,687 lived in cities and 657 in the country. Each of 1,553 persons had fortunes ranging from 1,000,000 to 4,000,000 marks (\$952,000), 622 from 4,000,000 to 10,000,000 marks (\$2,380,000), 143 from 10,000,000 to 25,000,000 marks (\$5,950,000), 24 from 25,000,000 to 100,000,000 marks (\$23,800,000), and 2 over 100,000,000 marks. Of the richest taxpayers in 1902, 1,330 had incomes of from 100,000 to 150,000 marks (\$23,800 to \$35,700), 531 from 150,000 to 200,000 marks (\$47,600), 470 from 200,000 to 300,000 marks (\$71,400), 183 from 300,000 to 400,000 marks (\$95,200), 80 from 400,000 to 500,000 marks (\$119,000), 108 from 500,000 to 1,000,000 marks (\$238,000), and 60 over 1,000,000 marks (\$238,000). Of those having incomes of over 1,000,000 marks, 44 had between 1,000,000 and 2,000,000 marks (\$476,000), 8 between 2,000,000 and 3,000,000 marks (\$714,000), 2 between 3,000,000 and 4,000,000 marks (\$952,000), 3 between 4,000,000 and 5,000,000 marks (\$1,190,000), 2 between 5,000,000 and 6,000,000 marks (\$1,428,000), and 1 (Krupp), between 20,000,000 and 21,000,000 marks (\$4,760,000 and \$4,998,000). In 1901, Frankfort-on-the-Main was, relatively, the richest city in Prussia. In 1902, the highest average was for Bonn.

The number of persons paying State income tax in Prussia is 3,762,047, against 3,649,188 in the preceding year. The amount received by the State from this tax was 188,837,843 marks (\$44,943,406), against 186,888,684 marks (\$44,479,507) in 1901. Of the entire population, 64.61 per cent paid no State income tax; 31.05 per cent had incomes ranging between 900 and 3,000 marks (\$214 and \$714), and 4.34 per cent over 3,000 marks (\$714). The total amount of incomes on which tax was paid was 8,559,884,832 marks (\$2,037,252,590), of which 6,002,000,100 marks (\$1,428,476,024) was in cities and 2,557,884,732 marks (\$608,776,566) in the country.

GEORGE H. MURPHY,

FRANKFORT, *January 27, 1903.*

Consular Clerk.

* 1,000,000 marks = \$238,000.

STANDARDIZATION IN GREAT BRITAIN.

Consul Marshal Halstead, of Birmingham, under date of March 5, 1903, calls attention to an article in the London Times of March 2, which reads:

To-day will be published the result of the labors of the Engineering Standards Committee, which consists of twenty-four committees and subcommittees of the most eminent men in the great iron and steel industries of the country, and to which the Government departments have contributed fourteen representatives. The committees began their work in June, 1901, and took evidence on the advisability of standardizing the various kinds of iron and steel sections, and then they proceeded to carry the standardization into practice. Thirty thousand pounds (\$145,995) has already been spent by the various technical institutions connected with the iron and steel trades, and the Prime Minister has promised to support the movement by Government funds; and it is believed that within a twelvemonth British standard sections will be in operation in this country, with, it is estimated, a saving of some millions sterling to the British manufacturer and user. In structural steel alone these new sections will effect a reduction in cost, it is stated, of £750,000 (\$3,649,875) per annum. For several years, in Germany and the United States, standard sections have been largely used; and it will be found on examining the lists of sections about to be issued that the sections have been approximated very nearly to those used by our principal competitors. The lists of sections will, however, contain a sufficient number of sizes to insure that the scope of designers is not in any way crippled, at the same time avoiding any useless overlapping and unnecessary duplicating of plans and machinery. We have often been left behind in competition with other countries for want of quick delivery; but now, with a series of standard sections, makers will be able to stock the material and avoid the delay which was the cause of the loss of Government orders to our manufacturers for bridge building and locomotives in South Africa and Egypt, which went to the United States.

In the course of conversation, the chairman of one of the committees said: "These series of sections are preliminary, and are issued for the primary purpose of allowing of rolling mills to cut any new rolls they may require to the new standard or to recut the old rolls to bring them to the new standard. These lists are nine in number and cover all steel and iron rolled sections in connection with ships and general engineering, including equal angles, unequal angles, bulb angles, bulb tees, bulb plates, Z bars, channels, beams, and T bars. There is a notable reduction in the number of sections standardized; but, notwithstanding this, all the authorities are agreed that there is a sufficient number of sections for all practical purposes without in any way cramping originality of design either in ships, bridges, or rolling stock, for which these sections are primarily intended. In the case of equal-sided angles there are 16 sections varying from 1 by 1 inch to 8 by 8 inches. Of unequal angles, there are 30 sections varying from 1½ inches by 1 inch to 10 by 4 inches. For bulb plates (a section which is not now so much used as it was formerly), there are only 7 sections varying from 6 to 12 inches; similarly for bulb tees (which are practically only used for sailing ships), there are 6 sections varying from 7 by 5 inches to 12 by 6½ inches. On the other hand, for bulb angles there are 20 sections varying from 4 by 2½ inches to 12 by 4 inches. This is a section which is now largely used in shipbuilding. 'Channels' is another section which is not only very largely used in shipbuilding, but also in bridges, and especially in

the construction of the underframes of railway wagons, and of these there are 27 sections varying from 3 by $1\frac{1}{2}$ by $1\frac{1}{2}$ inches to 15 by 4 by 4 inches. In Z bars (which are only used by a few shipbuilders and by the Admiralty, but which make a convenient form of bulkhead stiffener), there are 8 sections varying from 3 by $2\frac{1}{2}$ by 3 inches to 10 by $3\frac{1}{2}$ by $3\frac{1}{2}$ inches. Perhaps the most important section, and one in which the need for standardization has been most felt, is the H beam. Here the list is very complete; in fact, if I have any criticism to offer, I think it might have been somewhat cut down. In any case, there are 36 sections varying from 3 by $1\frac{1}{2}$ inches to 24 by $7\frac{1}{2}$ inches. You will see that the lists of sections give all the necessary drawings and full particulars as to the profile, including all the radii and thickness, so that the steel makers will have no difficulty whatever in absolutely conforming to the standard, thus making all sections practically interchangeable."

As the work of the Standards Committee proceeded it was found necessary to include committees on the standardization of tests and specifications for iron and steel material used in the construction of ships and their machinery, and these are expected to report shortly.

When the whole labors of the committees are ended then will come the task of their deciding when the standard sections, standard tests, and standard specifications shall be put into full operation throughout Great Britain. The Government departments have promised their cooperation, and Mr. Arnold-Forster, M. P., says that all the heads of departments are determined to enforce standards (after giving reasonable notice to makers), so that they may be able to get their requirements in an emergency from the British manufacturer without having to go abroad for them.

A subsequent issue of the Times contains a letter from the chairman of the Engineering Standards Committee in which he says that in addition to the subjects enumerated in the above article, the following subcommittees are at work on equally important matters and will shortly report to the main committee:

1. Three committees on rails and tires engaged in drawing up a series of standard railway and tramway rails for use in this country and the colonies.
2. Four committees on the standardization of locomotives, which question, in so far as it relates to Indian locomotives, has been officially referred to the Engineering Standards Committee by the government of India.
3. Four committees on the question of the standardization of electrical plant.

The writer says further:

The standardization of pipe flanges will also before long be taken in hand, in cooperation with the Institution of Mechanical Engineers.

Another very important sphere of the committee's operations (only as yet commenced) will be the issuing of standard specifications and standard tests for materials.

THE WOOL-COMBING INDUSTRY OF BRADFORD.

It has been well said that the foundation of Bradford is wool. It has grown out of wool, as Manchester grew out of cotton and Pittsburg, Pa., out of iron. In Bradford are centralized the industrial and commercial activities in wool and wool products in Great Britain. Probably, 80 to 90 per cent of all the wool manufactured or partly manufactured in England is at some stage the subject of a

bargain on the Bradford exchange or in some Bradford merchant's warehouse. Several phases of the industry appeal to those connected with the wool industry in other parts of the world, hence a few facts concerning one leading branch may be of interest to our manufacturers.

WOOL COMBERS' CRISIS.

The wool-combing industry is passing through a serious crisis, but the verdict is general that when the commercial atmosphere is cleared and the trade put on a firm footing conditions will be all the more sound for the present winnowing process.

American textile readers in general know that in the autumn of 1899 a wool-combing trust was formed, comprising 38 firms of commission wool combers and top makers, three other firms having since pooled their interests. The authorized capital of the association was: In share capital, £1,500,000 (\$7,299,750); in first-mortgage debenture stock, £1,000,000 (\$4,866,500)—the share capital being divided into 800,000 preferred ordinary shares of £1 (\$4.86) each and 700,000 deferred ordinary shares of £10 (\$48.66) each. The actual issue was £750,000 (\$3,649,875) 4 per cent first-mortgage debenture stock, 650,000 preferred ordinary shares, and 531,000 deferred ordinary shares; total, £1,931,800 (\$9,401,104). The prospectus estimated the net profits per annum accruing from the 38 businesses at £112,065 (\$545,364). The net profits as earned for 1900 were £74,573 (\$362,909); 1901, £16,812 (\$78,267); and 1902, £43,318 (\$210,783). The year 1901 showed a debit balance, after paying all charges, of £16,813 (\$78,272), which last year was increased to £18,074, (\$87,957). Since the formation of the wool combers' trust, the managers have only paid debenture interest and 5 per cent on the preference shares. Last November, the bank refused to increase their overdraft, payment was stopped, and since that time the syndicate has been in the hands of two gentlemen, one representing the bank and the other debenture-stock holders, pending a scheme of reconstruction. It is impossible to say now whether such a scheme will be approved of by all the venders, five still refusing to admit such a course of action. The outstanding venders maintain that there is little to choose between liquidation and reconstruction, several preferring the former process, because this would release them from continuing their services with the Wool Combers' Association and give them an opportunity of starting in business again on their own account.

CHARGES FOR WOOL-COMBING.

At the last annual meeting of the Wool Combers' Association, the chairman laid special emphasis on the increased charges which all wool combers in Bradford had been compelled to make in view of

the increased cost of working plants; fuel, soaps, oils, and other materials having all gone up in value. The following table shows to-day's cost of combing the various classes of wool in Bradford:

Merino wools.

	Cents.
Wool tearing 7 and upward of top to 1 of noil.....	4
Wool tearing 5 and under 7 of top to 1 of noil.....	5
Wool tearing 3 and under 5 of top to 1 of noil.....	5
Wool tearing 3½ and under 3 of top to 1 of noil.....	5½
Wool tearing under 2½ of top to 1 of noil.....	6

Burring and regilling, each half a cent extra.

Crossbred wools.

	Cents.
56's crossbreds.....	3½
50's crossbreds.....	3
50's crossbred under 7 of top to 1 of noil.....	3½
40's to 46's carding.....	2¾
40's to 46's carding under 8 of top to 1 of noil.....	3

Burring and regilling, each a quarter of a cent extra.

No carding to be done under 2¾ cents.

All qualities above 56's crossbreds to come in under the merino tariff.

Iceland.

	Cents.
Wool tearing over 8 of top to 1 of noil.....	3
Wool tearing under 8 of top to 1 of noil.....	3¾

As showing how times have changed in the wool-combing industry of Bradford, and how charges have fallen in this branch of trade, the following table was published under the names of 16 of the first combers in Bradford on January 9, 1895. The difference between to-day's prices and those of eight years ago is worthy of note. The charges below have reference to merino wools only:

	Cents.
For wool tearing under 2 to 1.....	8
For wool tearing over 2 and under 2½ to 1.....	7½
For wool tearing over 2½ and under 3 to 1.....	7
For wool tearing over 3 and under 4 to 1.....	6
For wool tearing over 4 and under 5 to 1.....	5
For wool tearing over 5 and under 6 to 1.....	5
For wool tearing over 6 and under 7 to 1.....	4
For wool tearing 7 to 1.....	4

Wool-combing invoices are always net, no discount being allowed off wool-combing accounts.

WOOL COMBERS' WAGES.

The wool-combing industry of Bradford being of such large dimensions, it naturally follows that a large staff is employed. Full time is spoken of in this industry when factories work day and night, two shifts of men being then employed. At present, work is carried on by day only, and although Bradford has enjoyed a good

year's trade, the wool combers have been somewhat slack, owing to the shortage of the Australian wool clip. I have obtained a list of wages paid the help in the wool-combing industry, my informant (an acknowledged expert in connection with labor matters) stating that it "is by no means an average one, but obtains in one of the best-paid firms of the city."

Table of weekly wages.

Description.	Night work.	Day work.
Warehouse (men only):		
Bowl minders -		
3 bowls.....	\$5.28	\$4.80
Feeders.....	4.32	3.36
Strippers and grinders (men, each of whom has to attend 12 cards and 2 grinders), jobbers, for 11 botany cards or 6 English.....	5.28	4.80
Card feeders, by hopper and hand, for 6 cards:		
Men.....	4.32	
Women.....		2.88
Back-end minders by balling head or coiler cans:		
For 6 English cards -		
Men.....	4.56	
Women.....		2.88
For 11 botany—		
Men.....	4.32	
Women.....		2.88
Burr takers-out (men), for 11 cards.....	4.32	3.36
Shoddy willeyers (men).....		4.32
Wool runners (men), for 11 cards.....	5.28	4.32
Backwash minders (men), for 1 backward and strong box.....	5.28	2.88
Finishing box minders:		
Men—		
English (for 4 boxes).....	4.56	
Medium (for 2 boxes).....	4.32	
Women—		
English (for 4 boxes).....		2.88
Medium (for 2 boxes).....		2.88
Comb minders:		
Men—		
English (for 2 combs).....	5.52	
Medium.....	5.28	
Botany.....	4.80	
Women—		
English (for 2 combs).....		3.36
Medium.....		2.00
Botany.....		2.00
Strong gill-box minders:		
Men—		
Botany (for 2 boxes).....	4.32	
Medium.....	4.32	
English (for 4 boxes).....	4.56	
Women—		
English.....		2.88
Botany.....		2.88
Making-up box minders:		
Men.....	4.32	
Women.....		2.88
Jobbers (men).		
English.....	6.24	4.80
Botany.....	5.76	4.80
One man taking nois and cans out of 4 combs.....		4.80

The above figures refer to wages earned when a worker had done a full week's work—that is, fifty-five and one-half hours on the day turn and from sixty-three to sixty-four hours on the night turn.

ERASTUS S. DAY,
Consul.

BRADFORD, *January 29, 1903.*

TRADE IN DUNDEE IN 1902.

The state of trade at the beginning of the year 1902 gave indications of a prosperous business being done (in the immediate future, at all events), but these anticipations were not realized to the full extent in either of the jute or linen branches. During the first six months, the war in South Africa caused a demand for burlaps and the heavier makes of jute cloth. Regular supplies both of yarn and cloth were taken by America and Canada, while the home trade maintained a healthy activity. With the close of the war, however, a change set in, and, for the latter half of the year, the demands from all sources showed a considerable falling off. The Government requirements were of course much curtailed—indeed, in many cases, goods were resold—while the ordinary markets took greatly diminished supplies. With the exception of a short period at the close of the year, however, when manufacturers of certain classes of jute cloth were compelled to stop a considerable number of looms, machinery has been fully employed, the rate of wages has been maintained, and strikes have been practically unknown, excepting in some few cases where bad material gave rise to discontent among the workers. No financial troubles occurred during the year in the jute trade, and in only two instances of minor importance have the firms involved had to make arrangements with their creditors.

JUTE.

At the opening of the year, the trade was well supplied with jute bought at fairly low prices, from which it was expected that remunerative business might be looked for, more especially as the 1901 crop turned out to be better than earlier shipments indicated. A large proportion of the crop, however, has given dissatisfaction to spinners, and arbitrations have been more frequent than in previous years. Ship damage, which still continues to be a cause of complaint, has been so serious that the various associations have taken the matter up. It is largely due to want of care in the ventilation of the vessel, and importers will now insist on having jute sent by lines having a reputation for care in stowing. The quantity of new jute imported during the fall of the year was much in excess of that of previous seasons—indeed, by the end of the year the

supplies received, with those afloat or loading, were sufficient to meet all the requirements of the trade for the season. There were imported into Dundee during 1902 1,615,354 bales, or a supply in excess of the previous year by fully 520,000 bales.

JUTE YARNS.

In no branch of the jute industry has the trade of the past year been more profitable than in the spinning. Prices ruled low in the beginning, but spinners were plentifully supplied with jute of a quality superior to that of previous years. Little variation in price was experienced until the jute forecast was published, when, in sympathy with the hardening price of the raw material, cloth showed an improved demand, causing an advance in the price of yarn, which was well maintained till the close of the year. Strikes in this branch, with the consequent loss involved, have been practically unknown.

The export of yarns shows a steady increase for the past few years, chiefly to Brazil, but also to the United States. For chains and sacking web a fair demand has been experienced throughout the year at remunerative prices. Heavy common roves have not been much in demand, probably arising from lack of business in the cotton bagging trade, but sizes from 90 to 200 pounds have been selling steadily for roping purposes. It is difficult to see how yarns can maintain their present prices, unless some unforeseen demand takes place in cloth. Stocks of the raw material are being held at the close of the year at fairly high prices, which leave room for only a small margin of profit, and, if prices have to be reduced, a distinct loss is practically inevitable.

JUTE CLOTH.

It was no bright prospect that presented itself at the opening of the year in this branch of trade. Prices, which were lower on the average than they had been for some years before, failed to attract purchasers. In the matter of common 40-inch burlaps, Dundee is feeling the competition of Calcutta more every year. The River Plata ports have taken the bulk of their requirements from Calcutta, which has also supplied many of the North American markets, usually good customers of Dundee. As a consequence, manufacturers are beginning to exchange their looms from the 40-inch width to wider standards, suitable for the manufacture of floor-cloth fabrics.

In both floor cloth and linoleum the trade during the first half of the year was very quiet, in consequence of the reduced output necessitated by the high price of linseed oil and white lead. These were certainly exceptional circumstances, and manufacturers are showing their confidence in the trade to be done in the wider class

of burlaps by putting down so much new machinery for its manufacture. In the heavier kinds of goods a better tone has prevailed than in the case of ordinary burlaps. Fine sackings have been freely supplied to the Government, tarpaulins have been in good demand both at home and in Central America, while the Levant and home markets have taken considerable quantities of light baggings. Only a restricted trade was done in cotton bagging, and, as the United States did not import potatoes to the same extent during the autumn as in previous years, sacks for their transport were required only in small quantities. The outlook for ordinary burlaps is by no means encouraging. Orders which have been looked for from Argentina have not come to hand, having presumably been secured by Calcutta, which is also forcing many Dundee goods out of the United States markets.

FLAX.

The indications of a plentiful supply of good flax, which marked the close of the last year, fell far short of realization. Crop reports were exaggerated, and the results were below the average in quantity. Prices hardened in consequence, but the manufactured articles did not respond to these advanced values, and spinners were left with the barest possible margin of profit. It is expected that the next crop will be moderately satisfactory.

LINEN YARNS.

At the close of 1901, circumstances pointed to improved business in this branch of trade. The disappointing results of the crop, however, caused a firm advance in the price of the raw material, which necessitated a corresponding advance by both spinners and manufacturers, resulting in a very marked decrease in sales. The exports of yarns show a slight increase over those of 1901, the bulk of the gain being to the United States. At the close of the year a good deal of spinning machinery was idle, and immediate prospects are not of the brightest.

LINENS.

The year under review has not been a very satisfactory one to the manufacturers of linen fabrics, either in the fine or coarse departments. Business was well maintained in damasks and towelings, but the prices of yarns have ruled so high that the margin of profit has been reduced to a minimum, and in numerous cases actual loss has been sustained. During the early part of the year, the demands of the War Office and Admiralty caused a brisk business in sailcloth, canvas, and duck, but with the termination of the war production had to be reduced to the lowest possible limit. The official returns

show an increase of exports of linens over previous years, chiefly to the United States and West Indies, but also to other countries. Prospects are not very bright. There is much idleness in the engineering, machinery, and building trades in the country, and this dullness reacts upon the drapers' business. It is, however, hoped that the United States, West Indies, and South American markets will contribute largely to an extension of trade in the near future.

JOHN C. HIGGINS,

DUNDEE, *February 24, 1903.*

Consul.

WATERWORKS SCHEME IN ENGLAND.

In Upper Derbyshire, 30 to 40 miles northwest of this city, lies the valley of the River Derwent. The country embraced in this valley is a great watershed. The need of supplementing the water supplies of Derby and Leicester directed attention to the Derwent resources, and other communities filed claims to share therein. The result, after the expenditure of nearly £100,000 (\$486,600) on preliminary surveys and a parliamentary campaign, was the formation of the Derwent Valley Water Board, representing Nottingham, Leicester, Derby, and Sheffield. Their approximate distances from the proposed water supply are: Sheffield, 10 miles; Derby, 30 miles; Nottingham, 35 miles; and Leicester, 50 miles. The board was authorized to acquire the water rights covering an area of 50 square miles in the valleys of the Derwent and the Ashop, and to construct reservoirs and other works there. The cost of this enormous scheme is estimated at \$50,000,000.

The water resources to be brought to the service of these towns are practically inexhaustible. The gathering ground has an elevation above sea level varying from 500 to 2,070 feet. The annual rainfall is copious. An estimate based on dry-year averages shows that a minimum of 50 inches per annum may be relied upon. This will yield for storage 50,000,000 gallons per day. The whole of this gigantic volume of water will, of course, not be available for consumption; one-third must be restored to the Derwent, at a point below the reservoir system, to prevent injury to the vested interests in and along the stream. The quantity left for consumption will be shared as follows: Leicester, 35.72 per cent; Sheffield and Derby, 25 per cent each; and Nottingham, 14.28 per cent. These proportions are not based on population, but on the need of increasing present supplies. The cost of the works will be borne in the same proportions.

There will be five reservoirs, of respective dimensions as follows: (1) Storage capacity of 1,886,000,000 gallons, with a dam 114 feet high and 1,080 feet long; (2) capacity of 2,495,000,000 gallons, with a dam 113 feet high and 1,080 feet long; (3) capacity, 2,495,000,000 gallons, with a dam 95 feet high and 1,950 feet long; (4) capacity of 1,472,000,000 gallons, with a dam 103 feet high and 840 feet long; (5) capacity of 2,160,000,000 gallons, with a dam 136 feet high and 980 feet long. All the water collected in these reservoirs must be filtered, and filtering beds covering an area of 14 acres will be made. The five dams will need 2,000,000 tons of stone, and quarries covering 52 acres have been bought in the neighborhood. The machinery used can deal with masses weighing up to 6 tons, and many blocks put into the dams will be of that size.

An American invention, the Lidgerwood overhead-cable railway, with modifications introduced by the engineer of this work, supplies an easy and rapid mode of removing the excavated débris, while later on it will deal equally well with the stone that will have to be handled in building the dams. Two steel-wire ropes, 7 inches in circumference, are carried from one side of the valley to the other, the span being over 1,500 feet and the elevation above the river bed about 200 feet. On each side one of the strands passes over a pulley at the top of a lofty carriage mounted on rails, so that it can be moved, as desired, within a radius of 50 or 60 feet. Thus it is possible so to shift the direction of the aerial lines that the whole area of the trench may be covered by either of the cables, and thus a stone may be picked up from the truck which brings it from the quarry and lowered into exactly the position it is destined to occupy in the structure of the dam. Fully 600 tons of material can be moved in a single working-day.

It has been necessary to construct a railroad 7 miles long for both present and future use in connection with the reservoirs. The road has been built with almost as much care and expense as if intended for passenger traffic. Several lofty viaducts were necessary.

On the work, as a whole, a small army of men will be employed for a dozen years or more. A town has been built especially to house them. The houses are of galvanized iron, lined with match board. Dwellings are provided for married men and their families, as well as for single men. Sanitation and sewage are carefully provided for. A school, a hospital, a concert hall, and a church have been established. Stores of all necessary kinds, a post-office, and a police force complete the equipment of the town. Its present population is 600, which will be much increased when work is fully under way.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *February 21, 1903.*

No 272—03—5

NEW AMERICAN SHOE MACHINES IN ENGLAND.

Seven of the New American shoe machines, which do the work known as "pulling over," have been introduced into Leicester, a great shoemaking place in this consular district, by the British United Shoe Machinery Company. Each of these machines displaces 12 workmen. By what is enthusiastically described as a "beautiful combination of power-driven and perfectly balanced spring pincers," it automatically takes all the stretch out of the upper of a boot, brings the whole into the perfect shape of the "last," and automatically fixes the upper to the insole. One machine, worked by a single operative and two or three boys doing simple preparing, "pulls over" 60 dozen pairs per day and can keep three consolidated lasting machines in full work. The operation of this machine has been a revelation to both employers and workmen at Leicester.

It is well known that English workmen are peculiarly antagonistic to, and well organized against, the introduction of labor-saving machinery. The new shoe machines are exceptionally open to the objections which they are accustomed to urge. Steps are therefore being taken to meet the workmen on some sort of compromise, with a view to which a conference between the National Boot Operatives' Union and the National Federation of Manufacturers is proposed.

FRANK W. MAHIN,

NOTTINGHAM, *February 7, 1903.*

Consul.

FINANCES OF BRITISH "MUNICIPAL TRADING."

A comprehensive return of the financial workings of the "public utilities" undertakings in British towns and cities has just been given to the public through a Government board. It covers the four years ended March, 1902. The principal undertakings carried on by 299 corporations were:

Markets	228
Waterworks	193
Cemeteries	143
Baths	138
Electricity	102
Gas works.....	97
Tramways.....	45
Harbors.....	43

Summarized, the return shows that the total capital provided by these towns and cities, with a gross population of 13,093,870, was £121,172,372 (\$589,675,348), of which £100,786,404 (\$490,476,035) was borrowed money. Originally, £117,032,923 (\$569,540,720) was borrowed, but £16,246,519 (\$79,063,684) has been repaid. The average annual income was £13,040,711 (\$63,462,620) and the annual working expenses £8,228,706 (\$40,045,098).

To give a particular case: Up to the date referred to (March 31, 1902) Nottingham had borrowed for the use of its various undertakings—water, gas, electricity, tramways, markets, baths, and cemeteries—a total of £2,844,057 (\$13,840,604). The gross annual income was \$2,330,000; working expenses averaged \$1,523,000. The net profit on the several undertakings—applied in aid of rates—amounted to a saving of about \$158,000 per year to the city taxpayers during the four years ended March 31, 1902.

F. W. MAHIN,
Consul.

NOTTINGHAM, *February 23, 1903.*

THE SHORTEST TRANS-ATLANTIC STEAMSHIP ROUTE.

Renewed and earnest attention is being directed in England toward a short trans-Atlantic route which has been talked about for a score of years past. The absorption of several steamship lines into one corporation controlled in the United States and the general advancement of that country in the shipping trade have thoroughly aroused the British public, and it is now plainly said in some quarters that if England does not immediately develop the shortest route project, the United States will step in and reap the golden harvest.

One of the best natural harbors in the British Isles is that of Galway, on the west coast of Ireland. Almost straight across the Atlantic is St. John's, Newfoundland. The distance between these two outposts is but 1,816 miles; from Liverpool to New York it is 3,116 miles, and from Southampton 3,095 miles. The time from New York to London could, it is claimed, be easily shortened twenty-four hours by the St. John's-Galway route. It is assumed that transit by land between New York and St. John's would be a material time-saver, while on this side the railway and steamboat distance from Galway to London is less than from Queenstown, where hurrying passengers are now accustomed to debark or embark.

The harbor of Galway is said to be capable of almost indefinite expansion and development, and is protected from Atlantic storms by the Aran Islands, which form a natural breakwater across the entrance.

The fact that mails could be interchanged a day quicker each way than now is considered a very strong argument in favor of this route.

Commenting on this project an English periodical says, referring specifically to the United States:

British trade in the Atlantic is seriously threatened; in a short time it will have fallen into utter decay unless a strenuous effort to regain it is made—and it is in the light of a bid for the lost supremacy and a challenge to all competitors that this enterprise must be viewed.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *February 17, 1903.*

FOG SIGNAL IN BELGIUM.

I transmit herewith a report, made at my request, by Mr. E. De Meulemeester, of No. 62 Rue de Neuchatel, Brussels, Belgium, the inventor of the Edem fog signal.

Mr. De Meulemeester informs me that in February and March, 1902, he made trial tests of his signal at sea in foggy weather. The result convinced him that he could simplify the working of the apparatus. His last trials were made on the North Sea in December, 1902, and during the first few days of January, 1903, and proved in every way successful. Mr. De Meulemeester has taken out patents for his fog signal in Belgium, France, England, Germany, Norway and Sweden, and the United States.

GEO. W. ROOSEVELT,
Consul.

BRUSSELS, *February 13, 1903.*

REPORT ON THE EDEM FOG SIGNAL.

During fog and mist, vessels are exposed to collisions and experience great difficulty in entering harbors. This fog signal prevents these dangers. The apparatus consists of (1) a receiver of the waves of sound and (2) an indicator of the source of emission of the sounds.

The receiver consists of a series of trumpets arranged in a circle on a mast, with their bells turning to all points of the horizon, the narrow end of each of these trumpets being connected to the indicator by means of a tube.

The indicator, close to the hand of the captain or of the officer of the watch, has a tubular ring, from which issue all the acoustic tubes from the receiver, the orifices being fixed round the ring in the order corresponding to the position of the trumpets of the receiver.

In this tubular ring is a small opening, to which is attached a hearing tube, by means of which sounds entering the trumpets are heard by the person working the instrument.

Each of the acoustic tubes is furnished with a valve or "interrupter" near the orifice, the closing of which intercepts the passage of sound; besides which, the interrupters are supplied with a mechanism enabling the operator to open or close the valves at will.

Around the ring of the indicator are marked numbers in an order corresponding with those of the trumpets of the receiver. A movable index needle completes the mechanism.

By means of a special arrangement, the officer of the watch can perceive the sounds received by the indicator directly and at the same moment as the operator, and so control the exactitude of his work.

When the operator hears a sound coming from some point of the horizon, by means of the mechanism at his hand, he closes all the acoustic tubes passing from the receiver to the indicator, except the one in front of the index needle. If then he hears nothing, it signifies that the sound does not proceed from the direction toward which the bell of the trumpet, corresponding to the open tube, is turned.



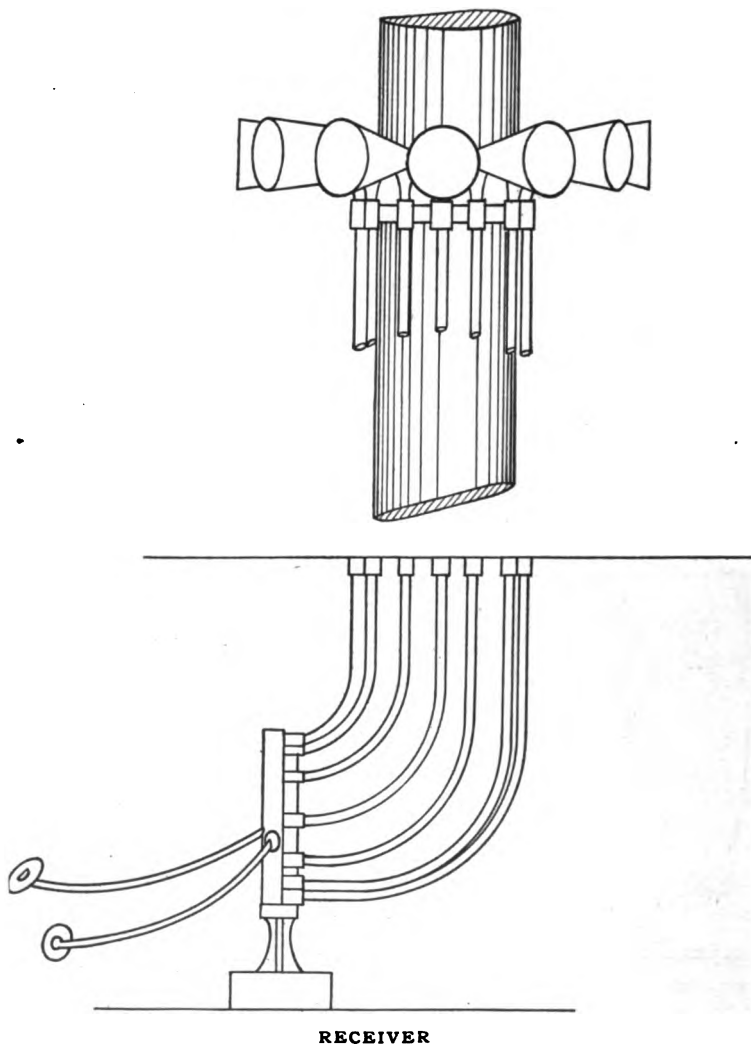
INDICATOR.

He then places the index between two tubes (by which means all the tubes are opened again) and notices whether the sound continues, after which he sets the index at the following number, and so on till he discovers the exact direction of the sound.

The whole proceeding takes a few seconds.

The Edem fog signal, through its rapidity and the exactitude of its signals, indicates immediately to captains of vessels supplied with the necessary appliances their position and their respective courses during fog, so that hesitancy and inaccurate maneuvers liable to bring about a collision are avoided. The signal offers the captain of a vessel facility in finding the entrance of a harbor.

Experiments have been made in the North Sea with two steamers, one furnished with the fog signal and the other without it. The last was ordered to give signals with its siren, maneuvering now at port, now at starboard, passing in front and behind the other steamer. The operator of the first ship could always indicate the position of the other ship in a few seconds by means of the indicator's needle, and follow the alterations of its course.



The experiments have proved that one can locate the source of the emission of the sounds in a space of a twelfth of the horizon. By the difference in the intensity of the sound, the approach or retreat of a ship can be certainly indicated.

Several of these experiments were made under the direction and in the presence of the harbor master of Ostend, who appreciated the practical value of the invention, which by its simplicity can be applied on every kind and size of ship, and so render valuable service to navigation.

ANTWERP IVORY MARKET.

The first quarterly ivory sale of the year closed February 4, the ivory offered and sold being as follows:

Kongo:	Pounds.
Hard.....	128, 945. 3
Soft.....	5, 459. 3
Angola.....	40, 543. 8
Kamerun.....	5, 698
Ambriz.....	4, 526
Gaboon	5, 408. 7
Senegal	1, 196. 8
Mozambique.....	160. 6
Hippopotamus.....	161. 7
Total.....	192, 100. 2

Previous sales for this period have been:

	Pounds.
1902.....	180, 724. 5
1901.....	192, 933. 3
1900.....	159, 860. 8
1899.....	141, 171. 8
1898.....	126, 291
1897.....	131, 381. 8
1896.....	144, 760

Notwithstanding the importance of the stock for sale and the higher prices obtained previously, the entire lot was sold at prices on a par with former rates, save for heavy bangle teeth, which generally underwent a slight fall.

The stock on hand amounts to 330,000 pounds. At this date in previous years it was:

	Pounds.
1902.....	298, 100
1901.....	226, 160
1900.....	216, 291
1899.....	192, 236
1898.....	119, 248
1897.....	172, 704
1896.....	219, 992

The next quarterly sale will take place May 5.

ANTWERP, *February 11, 1903.*

GEO. F. LINCOLN,
Consul-General.

STERILIZATION OF MEAT IN BELGIUM.

The sterilization of meat in Belgium was first practiced at St. Nicolas, a town in Flanders, and is yearly gaining in importance. The object of this innovation is to return to the trade, under the form of a wholesome product, meat which otherwise would be unfit for consumption.

During the year 1902, the total quantity of meat sterilized in the Kingdom amounted to 152,023 kilograms (334,451 pounds), distributed among the principal cities, as follows:

	Kilograms.	Pounds.
Antwerp	36,699	=80,738
Ghent.....	35,968	=79,130
Herenthals	12,936	=28,459
Verviers.....	6,643	=14,615
Neufchateau.....	800	=1,760

Sterilized meat sells at prices ranging from 25 to 80 centimes (4.8 to 15.4 cents) per kilogram (2.2 pounds), according to locality, while the sterilized juice sells for from 15 to 30 centimes (2.8 to 5.7 cents) per quart. The meat is also converted into extract, the cost price of which, not including labor, is 2.50 francs (48.2 cents) per quart.

GEO. W. ROOSEVELT,
Consul.

BRUSSELS, *February 28, 1903.*

ALCOHOL FROM THE JERUSALEM ARTICHOKE.

A recent report on the manufacture of alcohol from the Jerusalem artichoke by Consul Thornwell Haynes, of Rouen,* has elicited inquiries for further information on the subject. The following (obtained by Mr. Haynes from agricultural authorities in France) is extracted from a report made at the instance of a Chicago newspaper:†

The artichoke in France is worth about 35 francs (\$6.76) per 1,000 kilograms (2,204.6 pounds). This price means delivered free on board at the station of departure. The culture is analogous to that of the Irish potato. The tubercles are planted in February and ripen from September to October. They keep well and can be left in the ground and taken up as needed. The best soil for their cultivation is a deep but light and silicious one, or a rocky or flinty soil. The artichoke needs azote, phosphoric acid, and potash. In dry countries irrigation must be employed. About 1,500 kilograms (3,306.9 pounds) of tubercles are planted to the hectare (2.47 acres), yielding from 44,092 to 66,138 pounds of roots, according to the season and

*ADVANCE SHEETS No. 1497 (November 17, 1903).

† The original has been forwarded to the editor.

soil. It is cultivated in rows, for convenience in working. It is used, when cooked, as food for animals, especially for fattening cattle and hogs; horses are also fond of it. The distillation of the artichoke is analogous to that of the beet root. From 7 to 9 liters (7.397 to 9.51 quarts) of alcohol at 100° are obtained from 100 kilograms (220.46 pounds) of tubercles. Some cultivators mow the plant in July or October and obtain a fodder of which animals, especially sheep, eat, fresh or cured. The alcohol industry from the artichoke is little developed, because of certain difficulties inherent in the artichoke which are not found in the beet root. The alcohol obtained is, however, easily rectified and yields not only alcohol to burn, but also brandy.

The following are distillers of the artichoke:

M. Venier, à Geniclé (Indre-et-Loire), France.

M. Cail, à la Briché (Deux-Sèvres), France.

M. Masquelier à St. Maur (Indre-et-Loire), France.

The following have seed for sale:

M. Narcisse Poupet, La Foret-sur-Sèvre (Deux-Sèvres), France.

M. de Lamotte, Chateau de Rouilly, Par le Blanc (Indre), France.

INTRODUCTION OF AMERICAN AUTOMOBILES INTO SWITZERLAND.

Articles published recently in American papers which have reached this consulate show a development in the manufacture of motor cars at home that seems to me to warrant efforts to secure a market for them abroad. I have heard dealers here say that it is only a question of time when they will have to face American competition. The motor cars of a number of manufacturers in the United States are rapidly approaching the requirements of the European market as to type of carriage and price.

It is not generally known that the sale of automobiles is growing fast in Switzerland, especially in this part of the country—*i. e.*, the Cantons of Geneva and Vaud; for the Canton of Valais, the third Canton of this consular district, having but one road accessible (by law) to motor cars along the Rhone Valley and only a small number of inhabitants, is hardly worth taking into consideration.

Geneva, especially, has, in comparison with the cantonal population (135,000), a large number of these modern vehicles (about 280), and in this respect is far ahead of all the other Cantons of Switzerland. There are also many motor cycles, and it is estimated that during the coming tourist season the total number of automobiles will be increased to about 400.

Besides their novelty, there are many reasons why these vehicles should be popular here: First; the good and tolerably flat roads around Geneva; second, the charm of the city's environments; third, the proximity of France, where the roads are perfect and automobiling is a flourishing sport; fourth, the ever-increasing number of

automobiles "touring" through the city; fifth, the cheapness of benzine, now costing about 24 francs per 100 liters (\$4.63 per 26.42 gallons); and sixth, the establishment of energetic firms for the sale and hire of motor cars.

The most popular machines seem to be those of from 6 to 8 horsepower, and among them is the 6-horsepower French "Voiturette de Dion-Bouton," with two seats, which is sold here at a little under 4,100 francs (\$791.30). The firm Perrot, Duval & Co., Geneva, have already disposed of quite a number of these vehicles. They are comparatively light and are capable of making from 45 to 50 kilometers (28 to 31 miles) per hour. I am of opinion that this is the type of automobile which our exporters at home ought to adopt for sale in this country, provided the American machines are strong enough to climb grades of from 8 to 10 per cent.

Four-seated automobiles range in prices from 10,000 to 15,000 francs (\$1,930 to \$2,895). A few cost about 20,000 francs (\$3,860), and I know of one which cost 30,000 francs (\$5,790), but the latter is a high price, which will be paid rarely in this country. Ten thousand francs (\$1,930) is considered a fair average price for an automobile with four seats.

The demand for automobiles is so great that makers ask a premium of from 1,000 to 5,000 francs (\$193 to \$965) or even 7,000 francs (\$1,351) for prompt delivery.

Larger cars than the de Dion-Bouton "Voitures" and "Voiturettes," from Georges Richard, Clement, Panhard-Levassor, Rochet & Schneider, Darracq, and Krieger (French); Daimler (which is still considered as one of the best, if not the best, here), Adler (German) and Martini (Swiss) are frequently to be seen, their size and price covering a wide range. Most of the motor cars in Geneva are French; they compare with German makes as 4 to 1.

CUSTOM DUTIES.

Under the existing Swiss tariff carriages of all kinds pay a duty of 20 francs per quintal (\$3.86 per 220 pounds); but if the weight of the motor car itself, separate from the total weight of the vehicle, can be stated at the time of importation and proved by a certificate from the builder, the duty on it is assessed at 4 francs (77 cents) per quintal (220 pounds), the remainder of the total weight paying 20 francs per quintal (\$3.86 per 220 pounds). It can be safely stated that 100 to 150 or 200 francs (\$19.30 to \$28.95 or \$38.60) will cover the duty.

Motor cycles are assessed at 70 francs per quintal (\$13.51 per 220 pounds). The general tariff, which is applied to American goods, raises this figure to 100 francs (\$19.30).

The new tariff bill passed by the Federal Chambers at the end of last year, which will be submitted to the nation on the 15th of March next, increases the rate of duty on automobiles from 4 and 20 francs (77 cents and \$3.86) to 40 francs (\$7.72) net, provided the imported article is not upholstered, and if upholstered, to 60 francs (\$11.58) per quintal (220 pounds). This means on a nonupholstered automobile weighing 600 kilograms (1,320 pounds) a duty of 240 francs (\$46.32), and on the upholstered, of 360 francs (\$69.50).

I have been told that the pending tariff will probably not become effective before the beginning of 1904, if accepted by the nation; but the Federal Council has the power to fix the date.

TAXES.

A point of interest is found in the taxation of automobiles, which differs in the various Cantons. For instance, the Canton of Geneva taxes automobiles, under the head of "vehicles with one horse," 12 francs (\$2.31) per year, and adds to this a charge of 5 francs (96 cents) for a cantonal plate number. The neighboring Canton of Vaud imposes a yearly tax of 80 francs (\$15.44) on a 6-horsepower automobile; but each town or village of that Canton also has the legal right to tax the same article, and one village levied double the amount of the cantonal tax—*i. e.*, 160 francs (\$30.88)—which made a total yearly tax of 240 francs (\$46.32). The two owners of automobiles in that village sold their machines immediately.

A measure will shortly be introduced in the Grand Council of Geneva to tax automobiles in this Canton as follows:

Description.	Tax.	
	Francs.	
Up to 8 horsepower.....	12	\$2.31
From 8 to 16 horsepower.....	24	4.63
Above 16 horsepower.....	50	9.65

REGULATIONS FOR TOURISTS.

The right to travel in automobiles through the country is another pending question in regard to which I receive numerous inquiries from persons planning tours. It will be definitely settled in the near future. The Swiss Touring Club and the Automobile Club, both of Geneva, have long been advocating a general meeting of delegates from the different Cantons, with a view to securing uniformity in the regulation for cycles and automobiles. The meeting finally took place in Berne, December 19, 1902, and the bill now before the authorities will supersede the different cantonal regulations which now perplex and hinder the tourist.

Following is an abstract of the bill:

Each proprietor of an automobile must possess a cantonal card of identity, which shall contain his photograph. The capacity of the machine and the aptitude of the driver will be carefully examined into prior to issuing the card. Each machine must have two cantonal number plates, one in front and one in the rear. The alarm signal must be a low-toned horn. Two independent brakes will be required; also a green lantern on the links, a white one on the right side, and a red one in the rear. A maximum speed of 30 kilometers (18½ miles) will be permitted, but in towns, villages, and on mountain roads this speed is reduced to 10 kilometers (6¼ miles) per hour, and on bridges, sharp angles, and steep roads and in narrow passageways to 6 kilometers (3¾ miles).

Foreign tourists will be exempted from taxation and cantonal number plates, provided they are bearers of a permit from the authorities of their own country, and that reciprocity with that country exists.

It was hoped that all Cantons would accept the bill, but the Canton of Grisons, which is the most mountainous and in which automobiles are strictly forbidden, proves reluctant. It is also feared that the Canton of Valais will continue to restrict motor cars to the one road through the Rhone Valley to Brigue.

MANUFACTURERS AND DEALERS.

The only manufacturer of automobiles in German Switzerland is the firm of Martini, at Frauenfeld, Canton of Thurgovia. This company, however, is about to start a subfactory in French Switzerland, in which will be set up the Rochet & Schneider "chassis."

The firms dealing in automobiles in Geneva are:

Perrot, Duval & Co., 5 Rue General Dufour.
Garage des Eaux-Vives, Rue Muzy.
F. Panchaud, 2 Quai Pierre Fatio.
Dufaux frères, Quai du Mont-Blanc.
E. Kubler, Rue de la Cloche.
G. Roesch, 19 Avenue du Mail.
Megroz & Bocquet, 10 Boulevard James Fazy.
G. Jacot, 27 Boulevard du Pont d'Arve.
A. Souvairan & Co., 41 Rue des Abattoirs.

I transmit herewith a catalogue issued by the largest firm dealing in automobiles in Geneva, for the benefit of those interested.*

Catalogues of American manufacturers, even if they be in the language of the country to which they are sent, are of little effective use when pitted against the samples and agents of European houses. They are seldom carefully examined by the receiver, who invariably prefers to deal with the man on the spot.

HORACE LEE WASHINGTON,

GENEVA, *February 20, 1903.*

Consul.

* Filed in the Bureau of Foreign Commerce.

SPAIN'S FOREIGN COMMERCE IN 1902.*

Official statistics published by the Economista give the following statement of imports and exports, exclusive of gold and silver bars, in the last three years:

Imports.

Description.	1900.		1901.		1902.	
	<i>Pesetas.*</i>		<i>Pesetas.*</i>		<i>Pesetas.*</i>	
Raw materials.....	417,292,338	\$59,589,346	428,195,216	\$61,146,277	441,654,105	\$63,068,206
Manufactures.....	312,708,518	44,654,776	263,068,452	37,566,175	244,347,135	34,892,771
Food supplies.....	139,238,430	19,883,248	138,592,414	19,790,997	112,479,090	16,062,014
Total.....	869,239,286	124,127,370	829,856,082	118,503,449	798,480,330	114,022,991

* Taking the average value of the peseta at 14.28 cents.

Exports.

Description.	1900.		1901.		1902.	
	<i>Pesetas.</i>		<i>Pesetas.</i>		<i>Pesetas.</i>	
Raw materials.....	297,015,287	\$42,413,783	305,069,800	\$43,563,968	319,795,741	\$45,666,832
Manufactures.....	171,087,988	24,431,365	149,474,775	21,344,998	143,673,580	20,516,587
Food supplies.....	264,627,966	37,788,873	229,965,744	32,839,108	373,910,697	52,114,447
Total.....	732,731,241	104,634,021	684,510,319	97,748,074	737,380,018	105,297,866

It will be seen that the imports show a decline of 70,700,000 pesetas (about \$10,100,000) compared with 1900 and 31,300,000 pesetas (about \$4,500,000) compared with 1901.

Exports have increased 52,800,000 pesetas (about \$7,600,000) over those of 1901 and 4,600,000 pesetas (about \$660,000) over those of 1900.

Financial writers, commenting on these figures, point out that, when analyzed, they are not so satisfactory as they appear at first sight, for the following reasons: Raw materials have been imported to the value of 441,650,000 pesetas (about \$63,092,857) and exported to the value of 319,790,000 pesetas (about \$45,684,285), giving an increase of \$3,200,000 in imports and \$2,100,000 in exports. The principal increase in this class of imports has taken place in cotton, hemp, flax, and other vegetable fibers, raw and prepared hides, and coal. But the increase in imports of raw materials has not been followed by a corresponding decrease in imports of goods manufactured from similar raw materials. On the contrary, imports of cotton goods and other textile fabrics have increased. Moreover,

*A report covering the same subject has been received from Vice-Consul H. H. Hallatt, of Madrid.

the decline of 26,110,000 pesetas (about \$3,730,000) in imports of food supplies is largely due to exceptionally fine harvests of wheat and other cereals in 1902, and does not represent any permanent advance in agricultural productiveness; while the increase of 52,800,000 pesetas (about \$7,542,857) in exports is made up almost entirely of raw products—iron ore, lead, and wool—which will probably be imported in a manufactured state, and the important increase in exports of fruit products is almost entirely made up of the surplus of olive oil exported from the large crop of 1902. Finally, the diminution of 5,800,000 pesetas (about \$828,571) in exports of manufactured articles must be taken into account in arriving at a true estimate of the actual position of Spain's foreign trade.

R. M. BARTLEMAN,

VALENCIA, *February 12, 1903.*

Consul.

OLIVE OIL IN SPAIN.

Spanish olive oil is probably more in demand this season than for years past. This condition arises because of the partial failure of the Italian crops and the desire of Italian exporters to meet the demands of their foreign trade by supplying the Spanish product.

A small yield of olives usually follows a large one, but a comparison with the unprecedented production of 1901 in the provinces of Cordoba, Jaen, Seville, and Malaga, which resulted in the pressing of 3,500,000 arrobas (14,920,500 gallons) of olive oil last year, shows that the crop of 1902, from which the present oil is now being pressed, is not much less, being estimated at 3,000,000 arrobas (12,789,000 gallons).

At this writing, the olive-oil season is at its height and three-fourths of the immense crop of last year has been sold. While the 1903 price differs but little from that of a corresponding date last year, the average rate this season shows a slight increase. Shipments made on January 28, 1902, brought £30 to £31 (\$146 to \$151) per ton of 1,058 kilograms (2,332.4 pounds), cost and freight at New York, while the steamer leaving Malaga for New York on a corresponding date this year carried olive oil which sold for from £30 10s. to £31 15s. (\$148 to \$154.50) per ton.

Local exporters are seeking to create the impression that the sales to the United States this year are considerably under those of the season of 1902, but a glance at the invoice figures in this consulate shows quite a contrary condition. From October 1, 1901, to February 1, 1902, 1,625 petroleum barrels of olive oil were exported from Malaga to the United States, while from October 1, 1902, to

February 1, 1903, invoices have been taken out for 9,240 barrels, or more than five times that of last season.

Malaga olive-oil merchants say that the crop of Italy was badly damaged by unfavorable weather, frost in April last killing many blossoms. Italian exporters are consequently buying much Spanish oil, mixing it with American cotton oil (so it is said here), and exporting this concoction to the United States as representative of the Italian product.

In quality, this year's oil is not considered to be quite as good as that of last year, as it contains a trifle more acidity. At present, Malaga olive-oil exporters have an abundant supply in their cellars, but they complain that the sales throughout Europe are not as great as at the same time last year.

Usually, the sales to Russia, where great quantities of olive oil are used in religious observances, and to other parts of Europe are made during April of each year; and while a definite forecast of the fluctuation in prices can not now be made, the markets of previous years have always been affected later in the season by European demands, and there appears to be no reason to assume that opposite conditions will prevail this year.

D. R. BIRCH,
Consul.

MALAGA, *February 3, 1903.*

SILVER AND PLATED WARE IN SPAIN.

The following has been received from Consul R. M. Bartleman, of Valencia:

Special Consular Reports, Volume XXIII, on Silver and Plated Ware in Foreign Countries, contains no reports from Spain. There is, however, a large demand for silver and plated goods in this country, not only in crosses, chalices, and other sacred vessels employed in church services and ornamentation, but also in plain and fancy tableware. Only one important factory of such goods exists in Spain—that of Don Emilio Meneses, at Madrid, founded in 1840, which supplies the greater part of the national wants.

The Spanish tariff on silver and plated ware is annexed. American silver and plated goods are superior in finish to those sold here and I am of the opinion that United States manufacturers, after allowing for freight and tariff, could compete in price with the Spanish product on these markets.

The consulate at Madrid, where the Meneses factory is established, could give manufacturers more ample details as to particular lines of plated ware, processes and cost of manufacture, demand, discounts allowed to wholesale dealers, etc.

Customs tariff for the Peninsula and Balearic Islands.

Tariff number.	Articles.	Duty.				Mode of collection.
		Maximum tariff.		Minimum tariff.		
26	Silver in jewelry or plate, even set with pearls or precious stones,* per hectogram (3.5 ounces).....	<i>Pesetas.</i> 4.20	<i>Cents.†</i> 58.8	<i>Pesetas.</i> 3.50	<i>Cents.†</i> 49	Net weight.
27	Gold, silver, or platinum worked into other objects,* per hectogram	3.20	44.8	2.60	36.4	Do.
	<i>Copper and its alloys (white metals).</i>					
‡C. 82	The same metals and alloys, in gilt or silvered articles,§ per kilogram (2.2 pounds).....	3.75	52.5	2.50	35	Do.

* In the classification of jewelry or ornaments will be included all small articles of luxury, valuable on account of workmanship and generally intended for the ornamentation of persons of both sexes. In clearing finished articles, including jewelry and articles of gold, silver, or platinum filled with mastic, a reasonable tare allowance shall be made for such mastic. Utensils for domestic use, articles for church use, and, generally, all larger objects used for the ornamentation of houses, are included in this number.

† Taking the market value of the peseta at 14 cents. It should be noted that the maximum rates of duty apply to United States goods.

‡ Certificate of origin.

§ To detect gilt articles, they will be rubbed with hot alcohol and afterwards touched with one drop of nitric acid. If they are varnished only, the varnish will disappear with the alcohol, and the acid will produce its effect; if they are gilt, neither the alcohol nor the acid will produce any effect. Silvered articles will be filed until the metal underneath the superficial coating appears; moreover, if a portion of the plated metal be dissolved in nitric acid, the silver, should any exist, will be precipitated by adding hydrochloric acid, and a chloride of silver soluble in ammonia, with all the characteristics of this substance, will be formed.

HEMATITE MINING IN SPAIN.

Within the last year, an industry of much importance to American paint manufacturers and dealers has sprung into existence in Malaga. A rich vein of oxide of iron ore—valuable chiefly for the manufacture of red paint for structural ironwork—has been discovered near the city of Jaen, in the province of that name, about 85 miles from Malaga. Compania Mineralurgica, the firm owning and operating the mine, has established a plant on the outskirts of this city, where the ore is refined and prepared for export.

The owners claim that this deposit is the only one of consequence in Spain, a small mine near Santander being its sole rival. The ore is known as hematite, or sesquioxide, and those interested claim that it possesses a durability of color and the other properties necessary for the manufacture of red paint not excelled, if equaled, by the production of any other mines in the world.

The ore is shipped both in its crude state and refined, ready for mixing with oil.

Levigation is effected by submitting the crude ore to the process of grinding by stone crushers. It is then forced through filters of purified water and finally dried in kilns. The result is a fine red powder, which, mixed with a trifle more than 10 per cent of linseed oil, produces paint ready for use. Iron structural work of all kinds is usually protected by a coating of this paint.

Additional interest seems to attach to the industry, in view of the marked decrease—of 31 per cent—in the production of hematite in the United States in 1901. This fact has encouraged local exporters to renew their efforts to establish in America a firm market for their product, and all signs indicate that they are meeting with success.

According to published reports, the price in 1901 for the American ore was \$12.87 per short ton. Last year, the Malaga product was invoiced here at 50 pesetas (approximately \$6.80 in United States gold) per short ton of crude ore, and at exactly double that price for the levigated or prepared material.

This article was the only new product that appeared on last year's list of exports from Malaga to the United States, and at this writing 400 bags of crude ore are awaiting shipment to New York. This will be the largest single shipment since the opening of the mines, about one year ago. At present, however, the ore finds its largest market in England.

D. R. BIRCH,
Consul.

MALAGA, *February 28, 1903.*

DIRECT SHIPMENTS OF GRAPES FROM SPAIN.

The disastrous experience of the last few years in the exportation of Almeria grapes to the United States will, it is believed, bring about a decided change this season, which will assuredly be beneficial to exporters, receivers, and consumers.

It has been the custom to ship about half the grapes destined for the United States to Liverpool and there transfer them to the North Atlantic liners. This method has always caused a great deal of trouble and in many cases serious loss to the growers. In the rush of loading at Liverpool, the marks would get mixed, so that barrels bearing the same mark would be landed at different piers in New York, or the manifests of one steamer would contain barrels not on board, or barrels intended for sale in England would be shipped by mistake to New York. To remedy this state of affairs, the receivers in America and the agents of the various steamship lines in Almeria, backed by the larger exporters, will use every effort to ship the grapes in direct boats, not only to New York, but to Boston, if the demand at the latter point is great enough.

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Direct boats will undoubtedly insure better fruit for the consumers and also enable the receivers to place the grapes on the market much more quickly than under the present system.

The theory that grapes keep better when transshipped at Liverpool, allowing exposure to the air at that point, has been well-nigh exploded.

For the past three years, direct boats suitable for the green-fruit trade have been hard to get, and it is expected that this will be one of the drawbacks this year in the realization of the project.

It might be worth while for our American shipowners—who have already developed some Mediterranean trade—to compete for a portion of the 300,000 barrels shipped every year to America. The season is unfortunately for only two months (from the last of September to the second week in November), but, in conjunction with an established trade, a call here for 8,000 to 10,000 barrels would undoubtedly be profitable.

The freight last year averaged 40s. (\$9.72) per ton. Twenty-five barrels of grapes make a ton, and these occupy a space of 80 cubic feet in the ship's hold. The shippers demand that the barrels shall be stowed in such a way as to allow the free circulation of air, and that there shall be sufficient ventilators fore and aft.

I give below the harbor dues and other expenses incident to the shipment of grapes for the port of Almeria:

Transport tax of 3s. (73 cents) per ton of 25 barrels, collected by ship for account of receivers.

Pilotage, about \$11 gold.

Stowage of barrels in hold of ship, about 28 cents a ton, regulated by private agreement.

Fumigation, about \$6 gold; every ship is required to be fumigated.

Certain gratuities, which amount to from \$8 to \$12 gold.

A. E. CARLETON,
ALMERIA, *February 24, 1903.* *Consular Agent.*

THE ITALIAN CITRUS-FRUIT CRISIS.

The citrus-fruit industry of Italy has been for a long time in a deplorable condition. During the last few years, it has been getting worse; lemons that a few seasons past commanded 15 lire (\$2.90) per thousand on the trees are now hard to market at 3 lire (58 cents). Three mass meetings have been held, at one of which it is estimated that over 50,000 people were present, and the Government has been asked to obtain favorable treatment of citrus products in new commercial conventions; to see that customs exemption in Austria-Hungary be retained, and that better tariff rates be obtained in the United States and in Russia. New and modern lines of navigation,

especially to Australia, are requested, and lower freight rates by sea and rail. Other facilities desired are the abolition of the octroi tax on fruit, the passing of a law on agrarian credit, and aid in the constitution of a large local syndicate for the production and exportation of citrus fruits and products thereof.

A writer of a recent newspaper article criticises the system of selling the fruit by auction and urges the establishment of the old method of private contracts between representatives and buyers.

The lemon juice and essence trade has also been the subject of much discussion. The average annual production of the former varies from 12,000 to 13,000 pipes and of the latter from 1,400,000 to 1,600,000 pounds, of which the province of Catania produces seven-twentieths, Palermo five-twentieths, Messina four-twentieths, Syracuse one-twentieth, and Calabria three-twentieths. It is proposed to form a monopoly of this industry, which, it is said, could be done with a capital of 5,000,000 lire (\$965,000). While this consular district produces 40 per cent of the whole, none is exported directly; it all goes to Messina, where it is subjected to certain processes before being finally exported.

Another writer demands that the mixing of aqua fortis with essence, or spirit of lemon, be prohibited. He claims that this drug, which costs but a few cents a quart, has reduced the price of essence to 1.20 lire (23 cents) per pound, while the pure essence is worth four or five times as much.

The following gives the latest statistics of the citrus-fruit industry of Italy:

Province.	Area.		Trees.
	Hectares.	Acres.	Number.
Reggio Calabria.....	7,948	19,639.5	3,178,212
Messina.....	5,795	14,319.4	1,318,055
Palermo.....	9,463	23,383	3,785,500
Catania.....	5,772	14,262.6	3,309,020
Syracuse.....	2,530	6,251.6	1,012,319
Caltanissetta.....	266	657.3	106,519
Girgenti.....	479	1,183.6	141,828
Trapani.....	1,236	3,054.1	493,728
Foggia.....	540	1,334.3	337,608
Caserta.....	532	1,314.5	352,758
Naples.....	620	1,532	387,896
Salerno.....	1,566	3,869.5	978,895
Cosenza.....	247	610.3	154,821
Catanzaro.....	887	2,191.7	335,080
Cagliari.....	357	882.1	224,467
Porto Maurizio.....	129	318.7	200,252
Genoa.....	363	896.9	372,935
Total.....	38,730	95,701.1	16,739,907

ALEXANDER HEINGARTNER,

CATANIA, January 28, 1903.

Consul.

COMMERCIAL TRAVELERS IN AUSTRIA.

The regulations governing commercial travelers in Austria have recently been amended by a ministerial order. While the principle of State control is still maintained, many of the objectionable features, or rather interpretations, of the original statute have been modified.

As heretofore, orders for the following commodities may be solicited without license:

1. Machines, including motors, and parts thereof.
2. Building material, artificial stone, roofing felt, and artificial paving material.
3. Technical appliances for heating apparatuses and light and water plants.
4. Wooden shutters and window blinds.
5. Sewing machines, typewriters, and bicycles.

Other provisions are:

All commercial travelers soliciting orders for other articles of merchandise than those enumerated above must be provided with a license. Licenses are issued by the provincial industrial boards, and application therefor must be made, either verbally or in writing, by the proprietors of establishments employing traveling salesmen. The fee to be paid for a license is 2 crowns (40.6 cents).

Unless a license is sooner revoked for cause, it remains valid until its owner severs his connection with the person or firm at whose instance it was granted.

A commercial traveler must always carry his license with him.

Whoever offers gold and silver watches or jewelry for sale must be provided, in addition to the license given him by the industrial board, with a special permit from the imperial assay office of the district in which he is registered. This document must be produced to and visaed by every assay officer in whose district its owner desires to do business. It authorizes the licensee to sell to dealers, and to dealers only, such gold and silver ware as bears the Austrian assay mark and no other. The sale of plated ware is prohibited, and the supplies carried by salesmen are always subject to inspection and test by assay officials.

Traveling salesmen who are in the employ of mercantile or industrial firms are permitted to carry only samples of the goods which they offer for sale, and these samples must be marked by their employers as such.

No change has been made in the status of foreign salesmen, who now, as before, require only such documents as the commercial treaties with their respective countries stipulate.

FRED'K W. HOSSFELD,

TRIESTE, *January 22, 1903.*

Consul.

PROPOSED AUSTRO-HUNGARIAN TARIFF.

It is generally conceded in the European press that in the proposed tariff for Austria-Hungary (including Bosnia-Herzegovina), Hungary scored a success in defending her agricultural interests.

The duty on corn (maize) is raised from 1.19 crowns (24 cents) to 4 crowns (81 cents), and a minimum (treaty) duty fixed at 2.80 crowns (57 cents) per metric centner (220.46 pounds) in order, it is said, to avoid the competition of the United States.

A duty of 20 crowns (\$4.06) has been put on fresh fruit, which was hitherto on the free list.

The duty on clover and lucern seed has been raised from 1.19 crowns (24 cents) to 30 crown (\$6.09), in order to protect Hungary against the import of the cheaper American and Russian seed.

The duty on lard, suet, and pork (bacon) has been raised from 35.08 crowns (\$7.12) to 45 crowns (\$9.14). The Austro-Hungarian Monarchy has always imported more of these articles than it exported, and the American export in this line to the Monarchy has regularly increased.

On the other hand, it will interest American agriculturists to know that wood of all kinds, wool, flax, hemp, hides, etc., will continue on the free list, as being raw materials needed by the industries of Hungary and Austria.

FRANK DYER CHESTER,

BUDAPEST, *February 12, 1903.*

Consul.

HIDE MARKET OF HUNGARY.

A few years ago the slaughtering establishments of Budapest formed a hide-export union, with a central office in Vienna, where buyers were more likely to appear than in Budapest. Sales took place through the central office, with which the Austrian export union was also connected. Even leather manufacturers from the East—Servia, Roumania, Bulgaria, or Turkey—were obliged to buy hides in Vienna. The Hungarian product thus sold consisted mostly of good calfskins, the French buying them for their best patent leather (the manufacture of which in Hungary is not up to the standard, which is also true of glove leather). France also bought last year a quantity of Hungarian sheepskins, which, in spite of the large Balkan supply, are not worked up in Hungary.

Efforts are to be made to reopen the hide market at Budapest and sell the Hungarian product direct to West European purchasers,

instead of through Austrian or German houses. It is also intended to regulate the purchase of foreign leather, by encouraging importers to seek the foreign manufacturers direct. There is an opening for American leather in Hungary, as well as for boots and shoes.

FRANK DYER CHESTER,

BUDAPEST, *January 19, 1903.*

Consul.

ECONOMIC CONDITIONS IN GREECE.

The action of several continental countries in proposing to raise the tax on currants so as to practically close their markets to Greek fruit is calculated to disturb economic conditions in Greece, and may force the country into severing some close commercial alliances. The list includes Russia, Germany, France, Austria-Hungary, and, to a certain extent, Belgium—the countries which contribute most largely to the Greek import trade of \$27,000,000.

The tax on currants in Russia dates back to 1897, since which time practically no shipments have been made to that country, although some hopes were recently entertained that this duty would be removed. In 1896, France also placed a duty on the currant by way of protection to her wine industry. She had not entirely fallen out of the market, however, and her grape-crop failures last year led to the belief that the Greek currant would again be imported, but instead an additional duty has been laid thereon. Following this announcement comes the vote of the German Reichstag, by which the tax on currants has been raised 300 per cent and on grapes 500 per cent, while Austria is expected to practically double her duty on the same products.

These announcements are calculated to disturb the Greek economic structure, which rests so largely upon the success of the currant industry, but they do not necessarily forbode harm to it—first, because none of the countries mentioned has recently figured prominently in the currant export trade (Germany excepted for the last year only), and, second, because the United Kingdom and the United States, the two largest consumers of currants, are able and probably willing to make use of the surplus without inconvenience. The disturbance of the market arises from the hostile commercial attitude of countries which have enjoyed a large and annually increasing trade for their products in Greece—Russia in wheat, France in textiles, flour, etc., Belgium in iron and coal, Austria in sugar, lumber, and cereals, and Germany in a variety of products. There may be an attempt to retaliate by imposing a discriminating duty on the goods imported from these countries.

Any such attempt would be of interest to American exporters, as it would afford them an opportunity to supply the needs of this market. England, however, would probably reap the greatest benefits from any commercial rearrangements, as her goods have been for years greatly in evidence in Greece. The four greatest needs of the country—grain, coal, iron, and lumber—are the ones which the United States would best be able to supply.

FRANK W. JACKSON,

PATRAS, *February 17, 1903.*

Consul.

SULPHATE OF COPPER BIDS IN GREECE.

The Currant Bank of Greece has made public its decision with regard to the bids for the 1,000 tons of sulphate of copper referred to in my telegram of December 18, 1902,* and rejects all offers on the ground that the prices and terms submitted are not compatible with prevailing market conditions. The prices have not, of course, been made known, although it is generally understood that all bids were far in excess of the American bids of last year, and in most cases \$10 to \$15 per ton higher than what is considered an average retail price. American firms are not concerned in this matter, however, since the only firm that had a representative in the field prepared to meet the conditions was prevented from entering the contest at the last moment by the destruction of one of its largest plants.

It is to be regretted that other American firms should not have deemed it worth while to consider the proposition of the Currant Bank. There is no certain way of knowing the issue in such a case, but the facts seem to indicate that any American firm which could have met the conditions could also have underbidden European firms and secured the contract, and this view may be strengthened by a comparison of the successful American bid with the European ones of last year, in which the American was \$5 per ton below the lowest European. The bank is now advertising for bids of any number of tons under 1,000, in the hope that it may procure the desired quantity at more acceptable figures.

FRANK W. JACKSON,

PATRAS, *February 6, 1903.*

Consul.

*ADVANCE SHEETS NO. 1525 (December 20, 1902); see also ADVANCE SHEETS NO. 1552 (January 23, 1903).

OPENING FOR PAPER BARRELS IN GREECE.

Inquiries have been made at this consulate by one of the most extensive wine companies of Greece for the names of American manufacturers of barrels from paper. That such a process has been reached among our manufacturers I have no reason to doubt, as compressed paper has come to serve the purposes of wood, and occasionally of iron, in many instances, but in the lists of manufactured products on file in this office there is mentioned no factory of paper barrels. I shall be glad to have addresses for the wine companies here, in the hope that a profitable trade may be developed.

One of the obstacles which the wine trade is constantly meeting is the expense connected with the importation of staves and casks. There is no timber suitable for local manufacture, so that exporters of currants, as well as manufacturers of wine, must depend entirely upon the foreign markets for their supply of staves. So far as I know, American firms have never succeeded in obtaining a hold upon this trade with Greece, although efforts were once made by firms in our Northwestern States to ship staves by vessels around Cape Horn. Their failure, if it was not due to some cause foreign to the trade—as for instance, to difficulties encountered in the negotiations—must have resulted from an inability to compete in transportation rates, since we have staves in unlimited quantities.

FRANK W. JACKSON,

PATRAS, *January 24, 1903.*

Consul.

MILK FLOUR IN SWEDEN.*

I give below translation of an article lately published in a Swedish newspaper:

Dr. Martin Ekenberg's invention was last Thursday afternoon exhibited to representatives of the press in the factory at Birger Jarlsgatan owned by the company which will utilize the invention.

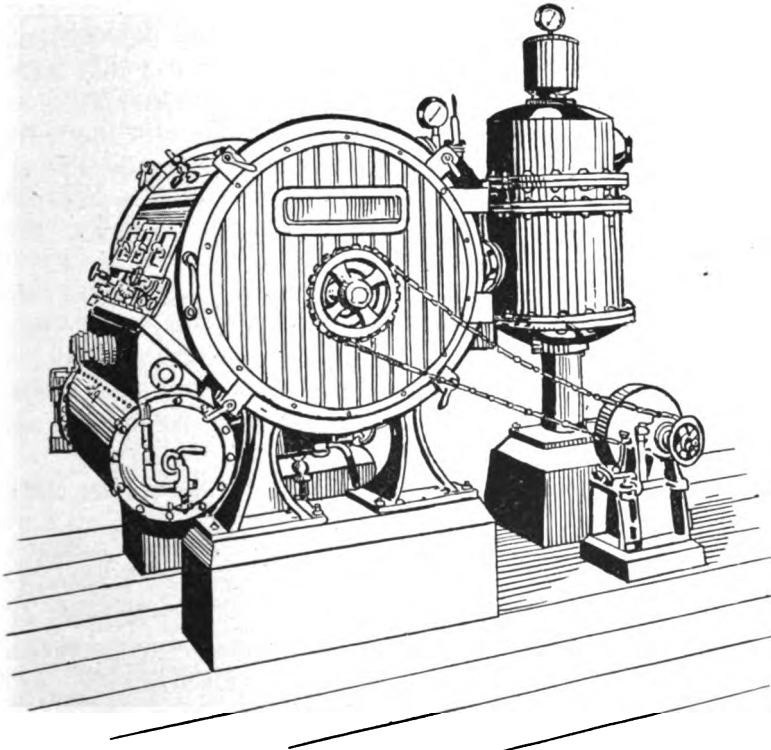
By the assistance of the exsiccator, skimmed milk is transformed into a highly soluble powder, which, dissolved at a temperature of 60° to 70° C. above zero in a proper quantity of water, gives a solution with the same taste, smell, and other qualities as common milk. The flour, or powder, can be easily transported and can be kept a long time without being spoiled.

The invention is considered to be of great importance for utilizing skimmed milk, which can be kept sweet only a very short time and can not be transported

*See ADVANCE SHEETS Nos. 1272, 1323, and 1376 (February 21, April 23, and June 25, 1903) for previous reports on the subject.

long distances, but still has considerable alimentary value. The yearly output of skimmed milk from our dairies amounts to 600,000,000 liters (158,520,000 gallons), according to the statistics of the Department of Agriculture. This milk may yield a quantity of milk flour of the same market value as the total export of butter.

The price of a large exsiccator, which evaporates 2,000 liters (528 gallons) of skimmed milk in ten hours—such a one has since last December been nearly every day in operation with good results—will cost 4,000 to 5,000 kronor (\$1,072 to \$1,340). At the present time, such apparatus are being built for ten dairies, and inquiries about the apparatus are nearly every day received from interested persons in Sweden and foreign countries, among whom Americans are prominent.



EKENBERG'S EXSICCATOR.

It is further reported that the evaporation takes place at such a temperature that a person without burning his hand can put the same on the apparatus while it is working, and that the manufacture of the finest kind of milk flour is done in vacuum, so that the air can not act unfavorably upon the milk under the process.

ROBERT S. S. BERGH,

Gothenburg, February 23, 1903.

Consul.

AMERICAN AGENCIES IN SYRIA.

In order to promote United States trade with Syria and Palestine, I have for several years past worked for the establishment of agencies in the principal commercial centers which would more or less exclusively devote themselves to trade with the United States, both in exports and imports. Each of these agencies should have sample rooms containing specimens of American manufactures and be the recognized headquarters for commercial transactions with our country. It seems the plan is gradually succeeding, and that Syrian trade with the United States will before long be fairly well organized.

In Beirut, H. Sabbag et fils are doing business with the United States almost exclusively. They export wool, licorice root, bitumen, rugs, etc., and import agricultural machinery, besides representing a large export house in New York City, which in turn acts for a number of American manufacturers in various lines.

In Haifa, the American Exchange Company was organized a year ago for business with the United States. Haifa commands the trade of Galilee, besides the plains of Esdraelon and Upper Sharon. It is the seat of a colony of foreigners, including some seventeen American families, who teach the natives modern methods in agriculture.

In Damascus, Meshaka & Nachman have during the past winter formed a commercial agency "with the object of furthering American commerce" in that region. An extensive trade is carried on with the Bedouin tribes, who pasture their flocks for hundreds of miles around. The Damascus-Mecca Railway has now reached a point due east of the Dead Sea, and has thus opened up the Hauran district—the granary of Syria—for agricultural machines and implements and other products of civilization. Last autumn, the Beirut-Damascus Railroad Company completed a standard-gauge feeder to Homs and Hamath. In the Bekaa plain (Cœle-Syria), as well as in the Hauran and other parts of Syria and Palestine, agriculture is in an extremely backward state. Large tracts of land of great fertility lie waste and depopulated, though showing traces of former prosperity and teeming population. Irrigation and railroads will prove strong factors in the redemption of these regions.

Besides the agencies at Beirut, Haifa, and Damascus, Tripoli is expected soon to have an American agency of its own. I know of nobody in Tripoli more interested in United States goods than John Hakim. In Cyprus the same applies to the house of P. J. Louisides & Co. The promoters of the agencies mentioned are connected in

an honorary capacity with the United States consular establishments in the respective places. Michel Nasser, representing H. Sabbag et fils; T. S. Boutagy, general manager of the American Exchange Company; and M. Meshaka, of Meshaka & Nachman, have all visited the United States within the last two years.

I would also call the attention of American manufacturers to the Syrian Protestant College at Beirut, and especially to its school of commerce, in connection with which a commercial museum is being gradually developed. Any article exhibited will be brought prominently before the peoples of the Levant through the students who come from all parts of Turkey, Greece, Persia, Egypt, and the Sudan. This college is an American nonsectarian institution, with an enrollment at present of 627 students. It has 5 departments—viz, medicine, pharmacy, commerce, arts, and archæology—with 45 professors and instructors, 28 of whom are native Americans and graduates of American colleges; and 14 commodious buildings and a campus of 50 acres. It is perhaps the largest American institution of learning outside the United States; the English language is the principal medium of instruction. American samples and commercial literature should be furnished this institution without stint.

G. BIE RAVNDAL,

BEIRUT, *February 5, 1903.*

Consul.

NEW RAILWAY IN PORTUGUESE EAST AFRICA.

Consul W. S. Hollis sends from Lourenço Marquez, January 31, 1903, clipping from the Gold Fields News in regard to the proposed railroad to the Transvaal via Swaziland, as follows:

The news that the Lisbon Government have decided to build the section of the Delagoa-Rand Railway in their territory has been received here with the greatest satisfaction.

Such a route would run from a point on the Delagoa line between Lingham's Siding and Matolla Station, through Rooi Lebombo Poort, and thence on to the Swazi frontier—a distance of, say, 29 miles in Portuguese territory. From the frontier to the coal mine (12 miles distant from the nearest point in the surveyed line) is 17 miles. Thence through the coal district—possessing, it is said, the best coal in South Africa—to Bulunga Poort is 45 miles. Bulunga Poort to Bremersdorp Road (the town 5 miles distant) is 20 miles. To a point within 15 miles of the Transvaal village of Amsterdam is another 37 miles. The remainder of the distances must be taken as approximate. Thus, from Amsterdam to Ermelo is, roughly, 40 miles; and from that township to Springs, 63 miles. Summarizing these figures, we have, Lourenço Marquez to Johannesburg, 337 miles.

The distance traversed by the present main line via Pretoria gives us a total mileage to Johannesburg of 396 miles. The new route would thus effect a saving of 60 miles, or probably more, full allowance having been made for absence of definite figures on the Transvaal section of the line.

The existing railways to the Rand are these:

	Miles.
Delagoa Bay to Johannesburg.....	396
Durban to Johannesburg.....	483½
East London to Johannesburg.....	688
Port Elizabeth to Johannesburg.....	715
Cape Town to Johannesburg.....	1,015

The proposed new line would thus give Delagoa Bay an advantage over Natal of 146 miles; in fact, it would give the Rand practically a line to itself. It would, moreover, relieve the northern line of traffic destined for Johannesburg and place the Swaziland coal fields in direct communication with the port, and such mines as exist there would thereby be able to supply coal between the collieries and the sea at a cheaper rate than any other coal-bearing territory in South Africa, by reason of the shorter mileage to be covered.

PORT REGULATIONS OF TAMATAVE.

Consul W. H. Hunt sends from Tamatave, February 3, 1903, translation of a decree of December, 1902, giving regulations for that port, as follows:

ARTICLE I. The port and roadstead of Tamatave, Madagascar, and their dependencies are subject to the following regulations:

Chapter I.—Movement and position of vessels.

ART. 2. Every vessel on entering and leaving the harbor must display its national color.

ART. 3. Every captain entering the harbor must within twenty-four hours deposit with the officers of the port a written declaration showing the names of his vessel and of the captain, the freighters or consignees, the tonnage of the vessel, its draft, whether sail or steam, the nature of the cargo, from what port sailed, date of departure from last port of call, destination, number of the crew, and the names and profession of the passengers. A similar declaration must be made before clearing. These declarations deposited by the captains are inscribed in the order of their presentation in a special register and are numbered.

ART. 4. Immediately on the entrance of a vessel into port, the port officers fix the spot where the vessel will lie, according to her draft, the nature of her cargo, and conformably to local custom. Vessels may not anchor or moor in other than the spots pointed out to them.

ART. 5. No captain of a vessel may refuse to take in a hawser or let go his ropes in order to facilitate the movement of other vessels.

ART. 6. Every vessel moored in the harbor must have a watch on board. If it become necessary to maneuver, and there are not enough hands on board, the port officers will assign the number of men they deem necessary. The wages of these men are paid by the captain, shipowner, or consignee, according to a statement drawn up by the officers of the port and rendered executory by the governor-general or his representative in the port.

ART. 7. In case of necessity, any captain or watch may double his chains and take any other precaution pointed out. In case of bad weather, captains are expected to go on board their vessels and remain there till the return of fine weather. They must themselves take all the precautions necessary to avoid damage.

Chapter II.—Unloading.

ART. 8. Goods must be removed as they are submitted to the verification of the customs—at the longest, twenty-four hours after their verification. If they are left longer on the quays or in the open, the port officers certify the fact by a report, and, after having notified the captain of the vessel or the consignee, have the goods removed to the warehouses, whence they can no longer be removed until after payment by the parties concerned of the expenses of transport, storage, and all accessory costs.

Chapter III.—Taking and discharging ballast.

ART. 9. No person may take in or discharge ballast without having twenty-four hours previously made a declaration to the port officer.

ART. 10. The port officers point out, conformably to the indications of the public works board, the lands attached to the port on which ballast may be discharged.

Every captain desirous of transporting or removing ballast to or from the places of deposit pointed out by the administration must make a written declaration to the port officers. These declarations must show clearly the name of the vessel, of the captain, of the owner or consignee, the spot occupied by the vessel, and the quantity, quality, and nature of the ballast.

These declarations are inscribed in the office of the port officers in a special register. Authorizations are issued in the order of their application, except in exceptional circumstances, to be left to the judgment of the port officers.

ART. 11. It is forbidden to any captain to take his ballast on board, whatever may be its origin, even if it came from his own ship and had been temporarily deposited on the quay, until the officers of the port have certified that such ballast contains no deleterious matter. Iron ballast and stones are alone excepted.

ART. 12. It is forbidden to take on or discharge ballast at night without a special authorization from the port officers.

Chapter IV.—Precautions against fire.

ART. 13. It is forbidden to make fire on the quays or open places within a distance of 60 feet from the tents or depots of goods or to carry lights other than in lanterns.

ART. 14. It is not allowed to have a fire or lights on board of sailing vessels or steamers beyond what is requisite for the needs of the crew and passengers, for visiting, and for making repairs of the machinery. Fires and lights are forbidden on vessels where the crew have been discharged and which only have a watch. The lights must be confined in lanterns. The use of essential oils of petroleum and other analogous oils is forbidden. Warming apparatus must be of iron, copper, or stone work. The flooring which supports the same must be furnished with metallic plates and properly isolated from the hearth. These apparatus are subject to the inspection of the port officers, who have the right to forbid their use when they are improperly fired or in bad condition, and even to place at the expense of the captain, owner, or consignee a special fire watchman when they deem it necessary.

ART. 15. No vessel can enter the port with loaded cannon or other firearms. It is enjoined on every vessel loaded, totally or in part, with one or more of the dangerous articles of merchandise enumerated in the decree of August 12, 1874, to stop at the inner issue of the passes of the harbor and outside the line which joins the northern extremity of the southern reef to the light-house at Point Tanio in order to make a declaration while its moorings are being pointed out to the vessel. The loading and discharging of these dangerous substances can only be effected at spots which will be pointed out to the parties concerned by the officers of the port.

ART. 16. In case of the outbreak of fire on board a ship, the captain or the watch must with all speed notify the port officers. These officers can requisition the aid of

all the workmen of the port and the sailors of all vessels, boats, and embarkations in the harbor. They will immediately notify the municipal authorities.

ART. 17. When there is occasion to have fumigations on board a ship, notice must be given to the officers of the port, who will fix the spot for performing the operation.

ART. 18. It is forbidden to heat coal tar except on spots indicated by the officers of the port.

Chapter V.—Construction, careening, and demolition of vessels.

ART. 19. In the limits of the public domain, no ship, boat, or bark can be constructed, careened, or demolished, except on the spots indicated, with measures of precaution prescribed.

ART. 20. A vessel can not be launched without a declaration made twenty-four hours previously to the officers of the port, in order that the latter may assist at the operation.

ART. 21. When a vessel or boat has sunk, the owner or captain may be called upon to have it raised without delay or taken to pieces, if such be judged necessary by the officers of the port.

Chapter VI.—Police of the port and of the quays.

ART. 22. It is forbidden to throw earth or any kind of rubbish into the waters of the harbor; to throw unhealthy liquid matter; to deposit anything on those parts of the quays or jetties reserved for circulation; to deposit on the other parts articles not forming part of goods being landed or put on board, subject to the penalty of having the same removed at the expense of the offending party; to wheel trollies, wheelbarrows, or vehicles on the quays; to cut stone on the quays or jetties, to do carpentering or cabinetwork, or any other artisan work, without the authorization of the chief of public works. It is forbidden for any person unacquainted with the crew to let go the moorings without having received orders from the officers of the port.

ART. 23. No tent may be erected on the quays without the authorization of the port officers.

ART. 24. It is forbidden, without the authorization of the port officers, to throw goods from a vessel onto the quays or jetties; to ship or land paving stones, blocks of metal, or other goods liable to damage the quays or jetties, without covering the same with planks for protection.

ART. 25. Offensive-smelling goods can not be deposited on the quays. If the consignee of the vessel does not have such removed immediately after landing, they will be removed at his expense by order of the port officers.

ART. 26. Carriages, wagons, etc., can not stand on the quays beyond the time strictly necessary for loading and unloading.

ART. 27. Every evening at the close of work, oars, ladders, planks, and other articles employed in landing and loading goods must be arranged in such a manner as not to impede circulation.

ART. 28. Captains, masters, and patrons are responsible for damages which their vessels may cause to the works of the port, except in unforeseen circumstances. Damage is repaired at the expense of the person occasioning the same.

* * * * *

Chapter VIII.—Pains and penalties.

All captains and masters who infringe the present regulations are liable to a fine of from \$3 to \$100.

Any person who, without falling under the penalty inflicted by the preceding articles or by previous laws, shall have caused damage to the works of the port may be prosecuted to repair the damage.

MINERALS IN AUSTRALASIA.

The latest statistics issued by Mr. Coghlan, Government statistician, contain information as to the mineral production of Australia in 1901. The total value of the Commonwealth's output during the year is given as £22,016,000 (\$107,140,864). Western Australia stands easily first on the list, its productions (almost entirely confined to gold) amounting to £7,445,722 (\$36,234,606). Next come New South Wales with £5,854,150 (\$28,489,221), Victoria with £3,312,162 (\$16,118,636), and Queensland with £3,114,702 (\$15,157,697.) Victoria also derives its principal mineral revenue from gold, the value of last year's output being given at £3,102,753 (\$15,099,548). The value of the coal produced in Victoria in 1901 was only £147,191 (\$716,305), and no other branch of the mining industry returns much. In New South Wales the most prominent revenue-producing industry is coal mining. The value of the coal mined in New South Wales last year was £2,178,929 (\$10,603,758). No other Australian State produces coal worth more than a few hundred thousand a year, though it may be noted that the coal product of Queensland was last year in excess of that mined in Victoria, being valued at £180,877 (\$880,238). South Australia produces no coal, while Tasmania only obtained £38,451 (\$87,332) from this source and Western Australia £68,561 (\$333,652). The coal returns of New Zealand show the value for last year at £676,174 (\$3,290,601).

In silver production, also, New South Wales not only heads the list, but produces more than the rest of the Commonwealth and New Zealand put together, the value of its silver and silver-lead output last year being £1,854,463 (\$9,024,744) out of a grand total of £2,208,866 (\$10,749,446). In gold, although New South Wales stands fourth on the list and is completely eclipsed by Western Australia, the output is still considerable. It figured last year at £921,282 (\$4,483,419), against £3,000,000 (\$14,599,500) of Victoria and £2,500,000 (\$12,166,250) of Queensland.

In the export of copper, New South Wales is third on the list, its output being surpassed by Tasmania and South Australia. In other minerals, New South Wales stands first, the turn-out being valued at £410,640 (\$1,998,379) and those of the other States at £111,924 (\$544,678); and in view of the fact that immense coal regions of New South Wales are as yet untouched, it is clear that the possibilities of the expansion of its mining industry are very great.

F. W. GODING,
Consul.

NEWCASTLE, *December 30, 1902.*

GOLD PRODUCTION OF AUSTRALASIA.

The total gold yield of Australasia for the year 1902 was 4,723,844 ounces, valued at £16,648,582 (\$80,020,324). The figures, compared with those of 1901, are:

State.	1902.			1901.		
	Gross weight of gold.	Value.		Gross weight of gold.	Value.	
Australia:	Ounces.			Ounces.		
Victoria	784,746	£3,094,000	\$15,056,951	789,562	£3,102,753	\$15,099,548
New South Wales.....	300,289	1,080,773	5,259,582	267,061	921,282	4,483,419
Queensland	857,713	2,647,879	12,885,903	835,553	2,541,892	12,370,117
South Australia.....	29,112	100,500	489,083	27,490	93,222	453,665
West Australia.....	2,177,441	7,515,000	36,571,747	1,879,391	7,235,563	35,211,867
Tasmania	66,500	259,000	1,260,424	75,831	295,176	1,436,474
Total.....	4,215,801	14,697,152	71,523,690	3,874,888	14,189,978	69,055,090
New Zealand.....	508,043	1,951,430	9,496,634	455,561	1,753,783	8,534,785
Grand total.....	4,723,844	16,648,582	81,020,324	4,330,449	15,943,761	77,590,875

MELBOURNE, *January 10, 1903.*

JOHN P. BRAY,
Consul-General.

TRADE OF TASMANIA.

The following report from Consul A. G. Webster, of Hobart, was received too late to be included in Commercial Relations, 1902:*

The total imports for 1901 were \$9,572,405, and the exports \$14,335,520. The imports from January 1 to June 30, 1902, were \$5,265,932, and the exports \$8,628,577.

The exceptional cause for the increase of imports in 1900 (referred to in my last annual report) no longer operated in 1901. New and abnormal conditions, however, prevailed in respect of exports, consequent upon the advent of free interstate trade on January 1 and on the severe drought in four of the largest States of the Commonwealth. The first cause resulted, as was anticipated, in an immediate expansion of trade in natural products, while the drought brought about a larger demand and enhanced values for potatoes, fruit, and fodder of all kinds. The leading items of export in 1901 were:

* In press.

Metals (copper, tin, gold, galena, etc.).....	\$8, 758, 435
Fruit, green and preserved.....	1, 513, 183
Wool.....	1, 364, 323
Potatoes.....	895, 114
Fodder (hay, chaff, and straw).....	467, 184
Skins and hides.....	370, 000
Grain (oats, barley, pease, and beans).....	349, 500
Bark.....	160, 000
Hops.....	120, 000

Speaking generally, the State is enjoying exceptional prosperity, which bids fair to continue throughout 1903, after which things may be expected to resume normal conditions. The drought has now broken, and with a return to fair seasons there will be no longer the same outlet for fodder and other products.

Mining interests have been depressed, owing to the low prices of copper, lead, and silver, and all tendency to expansion is checked. The brewing industry has been benefited by interstate free trade and seems likely to attain some importance in the future, the climate of this State being favorable for brewing.

While the inclusion of this State in the Australian Commonwealth has been beneficial to producers and to trade and industry generally, the public finances have suffered severely. The revenue hitherto derived from interstate customs duties is lost, and one-fourth of the duties now levied is retained by the Commonwealth for federal purposes. A tax of 5 per cent has been imposed by the State parliament on incomes derived from realized property and $2\frac{1}{2}$ per cent on those from personal exertion, trade, and business. The land tax has also been raised, and a stamp duty upon receipts has been added. From these combined sources, it is expected that the deficiency will be covered.

EXPORT OF POULTRY AND OTHER MEAT FROM NEW SOUTH WALES.

During the first eleven months of 1902 there were sent 98,462 fowls to South Africa, and other poultry in proportionate numbers. In February, March, April, and May the export averaged about 20,000 fowls per month. In addition to the South African demand, local conditions have latterly been such as to induce poultry raisers to put all available birds on the market. On account of the shortage of other meat foods, there has been a keen demand for poultry at good prices. Breeders have had to pay such high prices for feed that the stocks have been almost as badly depleted as flocks of breeding sheep.

An export trade of some importance that grew up during the

Boer war was that in butchers' sundries. The South African demand for ox tongues, tails, tripe, sheep's heads, calves' feet, and other products, technically known as offal, amounted during the earlier part of the year to upward of 600 packages per month. The drought has, however, reduced that business to very slender proportions, and it must be a long time before it can revive.

F. W. GODING,

NEWCASTLE, *December 30, 1902.*

Consul.

COTTON CROP OF INDIA IN 1902-3.

The Third General Memorandum on the Indian Cotton Crop of the Season 1902-3, by the statistical department of the government of India, includes the final reports for the Punjab, the Northwest Frontier Provinces, the United Provinces of Agra and Oudh, the Central Provinces, Berar, Central India, and Rajputana; for the early crop in the Bombay Dekkan; the third reports for Madras and Burma; the second reports of the late crop in Bombay and Sind; and the first reports for Bengal and the Nizam's Territory.

The noticeable feature of the reports is the extension of the area placed under cotton. The cultivation of this crop has made marked progress in the United Provinces, as also in the Punjab and the Northwest Frontier Provinces. Records are established for the Central Provinces, Berar, and Hyderabad, and there are large increases in Central India, Rajputana, Madras, and Burma. The area under the early crop in Bombay, however, is 24 per cent less than in 1901, which was a very favorable year. The late crop shows some expansion, but it is still much below the average. Low inundation has contracted the area in Sind, and there is a decrease in Bengal indicating a steady decline in the cotton crop in that presidency.

The following summary is made from the report:

In the Punjab, the total area is in excess of last year, and the crop will be the second largest since 1890, the largest being in 1900.

In the Northwest Frontier Provinces, with an increased area, the crop will be a fair average.

In the United Provinces there is an increase in area of 9 per cent over last year, and, corresponding with the preceding five years, the increase amounts to 24 per cent and the estimated outturn to 29 per cent.

In Bengal, the area is considerably less than last year and the outturn is estimated at about 77 per cent of a normal crop.

In the Central Provinces, the area is estimated at 17 per cent more than in the preceding year, the largest ever recorded, and the estimated yield is 34 per cent above that of last year.

In Berar, the total area under cotton is returned at 2.9 per cent above the figures of last year, the highest ever reached, and the outturn is estimated at 12.2 per cent more.

In Bombay, the latest reports received estimate the area under the early crop in the Dekkan at about 24 per cent less than that of last year, but only 2 per cent below the average of the last ten years, and the late districts show some expansion and the conditions are fairly good. The crop is estimated to yield 6.6 per cent less than last year.

The area under the late crop in Sind is estimated at 3 per cent over that of last year, and the crop is in fairly good condition.

In Madras, the area is estimated at 21 per cent over that of last year. The condition of the crop is reported generally fair and the outturn for the whole presidency is estimated at 88 per cent of the normal.

In the Nizam's Territory, the area under cotton is returned at 24 per cent more than that of last year and the outturn is estimated at 81 per cent of the normal, or 11 per cent more than last year.

In Burma, there is a large increase in the area under cotton and the crop is reported in a normal condition.

From the above, it may be expected there will be a fairly good crop of cotton in India this season, though not so large as the earlier forecasts promised. The crop in the season 1900-1901 was 2,900,000 bales of 400 pounds each; last season (1901-2), it was 3,400,000 bales and this season (1902-3) it is estimated at 3,500,000 bales.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *January 27, 1903.*

GERMAN FIRMS IN CHINA.

The German Department of the Interior has just issued a statement concerning German commercial and financial interests in the Chinese treaty ports, from which I have collected the following particulars:

During the last four years, the German commerce and capital engaged in China have increased to quite an extraordinary extent. This is particularly noticeable in Shanghai, the emporium of eastern Asiatic commerce. The number of German firms there has risen from 43 to 68. The one German bank in China (German-Asiatic Bank) has raised its paid-up capital (Aktienkapital) from 3,750,000 taels (\$1,248,750) to its charter limit of 5,000,000 taels (\$2,665,000). In consequence of the rising of the Boxers, the importation of arms into China has been prohibited, so that this remunerative branch of trade, which was to a great extent in the hands of German houses, has ceased almost entirely; otherwise, German capital and business enterprise are still interested in the same lines as in 1898.

With regard to the trade in Peking (which is not open to foreign commerce), there are two German concerns which do a retail trade, their principal lines being articles for daily use and provisions for the foreigners in that city. A German is also interested in a private telephone line between Peking and Tientsin. A German post-office

exists at Peking, and an agency of the German-Asiatic Bank will be opened there in the near future.

The following shows the number and importance of German firms in the various treaty ports, German shipping, etc.:

Amoy has a German post-office. There are two firms, with a capital of about 300,000 marks (\$71,400), engaged in industrial enterprises.

Canton has a German post-office. There are 12 firms which do 50 per cent—*i. e.*, about 40,000,000 marks (\$9,520,000)—of the total import trade of that port, and 75 per cent—*i. e.*, about 60,000,000 to 70,000,000 marks (\$14,280,000 to \$16,660,000)—of the export traffic. Thirty German coasters and six German river boats make their headquarters at this city; in the city and its neighborhood four different German missionary societies have erected main and subordinate stations, with a total force of 41 missionaries.

There is in Fuchau one German firm with ample capital, the greater portion of which is invested in the tea trade. German capital is also interested in a factory where duck feathers are cleaned, and in a barge company. The German marine service along the coast is irregular; in 1901, two German coasters and nine imperial mail steamers called at this port.

Hankau has a German post-office and telephone system. There are nine German firms and an agency of the German-Asiatic Bank. The capital engaged in business amounts to about 6,500,000 marks (\$1,547,000). The German share of the export trade amounts to about 12,000,000 marks (\$2,856,000), and of the import trade to about 3,000,000 to 4,000,000 marks (\$714,000 to \$952,000). Four million marks (\$952,000) are invested in the coal mines of Pingsiang and 100,000 marks (\$23,800) in albumen manufactories. Five German steamers ply between Hankau and Shanghai, one steamer between Hankau and ^{Ichang} ~~Itschang~~, and one between ~~Hankau~~ and Swatow.

Shanghai has a German post-office. There are 68 German firms besides the German-Asiatic Bank, the yearly turnover amounting to 120,000,000 marks (\$28,560,000), which is about 22 per cent of the total trade of this port. Two German limited companies, controlling a capital of about 2,000,000 marks (\$476,000), are engaged in silk and cotton weaving. German capital participates in four cotton-spinning mills, with a total investment of 9,900,000 marks (\$2,356,200); also in six silk-thread manufactories; in three dockyards; in a flour mill with a total capital of 6,900,000 marks (\$1,642,200); and in gas works with a paid-up capital of 900,000 marks (\$214,200), one-fifth of which belongs to Germans.

German money is also invested in the Hongkong-Shanghai Banking Corporation, the Shanghai Land Investment Company, the Shanghai Tugboat Company, the Shanghai Cargo Boat Company, and the Hongkong Wharf Company, to a total of about 8,142,000 marks (\$1,937,796). Twenty-five German steamers do a large carrying trade along the coast. Nine imperial mail steamers, seven steamers of the North German Lloyd, 17 boats of the Hamburg-American Line, and six other German steamers called in 1901 at this important port. Fourteen missionaries are active at Chekiang and Kwangsi.

Swatow has two German firms with considerable means, about \$24,000 of which are invested in a factory producing Sumatra oil. Two German steamers ply between Hongkong, Swatow, and Deli, and one between Swatow and Hankau. Eighteen steamers of the North German Lloyd's Orient Line, on their journey to Bangkok and Singapore, and 152 other German steamers called at this port in 1901. There are 16 missionaries.

Tientsin has a German post-office. There are 29 German firms and the German-Asiatic Bank. The total capital invested in business enterprise amounts to about

19,000,000 marks (\$4,522,000). Germany's share of the total import business is 60 per cent and of the export 45 per cent. The German capital invested in the Kaiping mines amounts to about 810,000 marks (\$192,780). Four German steamers, three of which belong to Ibsen, of Apenrade, and one to the Hamburg-American Line, maintain a regular coasting service between Shanghai, Tsintau, Chefoo, and Tientsin. In all, 123 steamers sailing under the German flag have called at this port. Forty-six missionaries are stationed here.

Chefoo has a German post-office and telephone service. Four German firms, with a capital of about 1,500,000 marks (\$357,000), do a yearly business of 4,500,000 marks (\$1,071,000). A regular service of mail steamers between Shanghai, Tsintau, Chefoo, and Tientsin is carried on by means of four German boats. In 1901, 238 German steamers called at this port.

OLIVER J. D. HUGHES,

COBURG, *February 4, 1903.*

Consul-General.

THE GERMAN COLONY OF KYAO-CHAU.

The last annual report of the Imperial Marine Department regarding the German colony of Kyao-chau, covering the period from the beginning of October, 1901, to the end of September, 1902, has just been presented to the German Reichstag. It notes that the colony is developing, although the consequences of the Chinese troubles have not yet allowed the reestablishment of a normal state of affairs, either at Tsintau or at any of the other North Chinese ports.

Since November 14, 1897, when the first German sailors were landed and possession was taken of this colony (which covers an area of 540 square kilometers, or 208.4 square miles, and counts 80,000 inhabitants), the German Government has spent 50,000,000 marks (\$11,900,000) on it, and the new appropriation calls for 12,421,000 marks (\$2,956,198), of which 7,470,000 marks (\$1,777,860) are destined for building and fortifying purposes and for a floating dock.

Whether these heavy investments will pay or not depends largely on the question whether the colony will be made the scene of private enterprise on a large scale. In this connection, it should be mentioned that the Shantung Railroad Company has invested 54,000,000 marks (\$12,852,000) and the German Mining Company (Deutsche Bergbaugesellschaft) 12,000,000 marks (\$2,856,000) without any help or guaranty on the part of the Government. The report says that real development of traffic can not be expected until the harbor and railroad, which are still in the course of construction, are completed, and until the mining operations are far enough advanced to be carried on in a regular businesslike manner. Since the middle of 1902, 170 kilometers (105.6 miles) of the new railroad have been opened to general traffic, but it is stated that the high water

last summer destroyed the bridge over the Weiho River and damaged the railroad in several places. Every day one train runs from Tsintau to Weih sien, and one in the opposite direction. In spite of the disturbances alluded to, the weekly number of passengers was, on an average, 4,000 to 5,000 people, and the goods traffic within nine months—building materials not included—amounted to 12,000 tons. Up to a few years ago the building of railroads in China was impeded by the hostile attitude of the population, but this has been changed. The Chinese governor of Shantung has even bought a considerable number of railroad shares.

It must be admitted that the goods traffic on the new line leaves much to be desired; improvement will depend on the possibilities of the export of coal. On October 30, 1902, the first coal train arrived at Tsintau. The report says in regard to the quality of the Weih sien coal:

On trials made in the Government workshops, it has proved to be superior to the Japanese coal, as it has greater heating power and gives off less smoke; also when tried as fuel on cruisers of the German squadron the coal gave satisfactory results, so that trials on a larger scale are at present being made in order to ascertain its general usefulness.

It is thought that by July, 1904, the line, in its whole length of 450 kilometers (279.6 miles), will be completed, its terminus being the town of Tsiangfu. Only then will it be seen if it will pay and if the colony of Kyao-chau is likely to prosper. So far, its imports and exports are of little importance, and the value of transit goods during the year from October 1, 1901, to September 30, 1902, reached a total of \$9,374,000, or about \$400,000 less than in the preceding year. The report says:

For some time to come Tsintau is likely to be a transit port—supposing, of course, that the facilities for shipping, loading, and forwarding of goods are as good as those of the treaty port of Chefoo. Only after the town has become of importance as a transit port can the outlook for an independent import trade be given. But to enter into profitable business relations with a people like the Chinese, who are most reluctant to relinquish their old habits, means hard and tedious work for a great number of years.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *February 11, 1903.*

SUGAR REFINING IN JAPAN.

Sugar has been produced in Japan from very early times (since about 900 A. D., it is said), but formerly the sugar was used without being refined, and the present conditions of the industry have developed within the last thirty years. The climate, even in the southern part of the Japanese group, is too cold for sugar cane to

grow throughout the year, and it does not blossom within the six months suitable for growth, nor does it produce sugar in such abundance as when raised under more favorable conditions. The annual production, exclusive of Formosa, is now reported at a little less than 4,000 tons, almost a negligible quantity in view of the importation of 152,000 tons of raw sugar and 176,000 tons of refined.

There are many sugar-refining companies in Japan, most of them situated in the southern part of the islands, the total capital invested in this industry being about 10,000,000 yen (\$5,000,000). Except in Formosa—which, although now a part of the Japanese Empire, has separate officers and laws—the industry receives no direct aid from the Government, and has been very unfavorably affected by the bounty system in vogue in Europe. The capital invested has yielded a rate of about 5 per cent profit, which is very low as compared with current interest rates in this Empire, but the outlook for the business is much more hopeful now, in consequence of the agreement by the representatives of the sugar-producing countries to the Brussels convention of last summer.

In 1901 the average import price of refined sugar was 95 cents per hundredweight higher than that of the unrefined, and the duty on refined up to No. 20 Dutch standard was 49.5 cents per hundredweight more than on unrefined. On upward of No. 20 Dutch standard the duty was 60.7 cents more than on unrefined, making a difference of \$1.445 and \$1.557 per hundredweight, respectively, on these grades, to cover the working expenses and profits of the Japanese refineries. The tariff on the unrefined sugar has since been raised and that on the higher grades has been decreased, so that the refineries now have less protection than formerly.

Besides the above duties, a law was passed last year providing for an internal-revenue or consumption tax on sugar, as follows:

Below No. 8.....	\$0. 375
No. 8 to No. 15.....	. 60
No. 15 to No. 20.....	. 825
No. 20 and above.....	1. 05

The numbers refer to the Dutch standard in color, and the amount of duty is given per hundredweight. Sugar, molasses, or sirup, taken delivery of from a manufactory, the customs, or a bonded warehouse, is subject to this duty, unless intended for export or manufacture. If so intended, it must be exported or manufactured within six months after delivery is taken, or the tax becomes due as if intended for consumption.

This law did not go into effect until more than six months after it was enacted, and consequently large importations of sugar were made in anticipation; but the refineries were unable to hasten their deliveries, and when the law came into force they found themselves

obliged to pay the consumption tax and, at the same time, to sell in competition with imported sugars which had escaped this impost. The serious losses resulting have been very discouraging to them.

The Japan Sugar Refining Company produces sugar which stands as high as No. 25 Dutch standard, and manufactures rum as a by-product. The company claims to be the only distiller of rum in this country.

The greater part of the refined sugar imported is brought from Hongkong and Germany, and that from the latter country pays a conventional tariff of 28 cents on sugar from No. 15 to No. 20, inclusive, and 31 cents on sugar above the latter grade, Dutch standard, in addition to the general tariff named above. The Philippine Islands, Hongkong, Dutch India, China, and Germany furnish most of the unrefined sugar, the countries being here named in the order of their importance with reference to this import.

E. C. BELLows,
Consul-General.

YOKOHAMA, *January 28, 1903.*

RAILWAYS IN JAPAN.

Consul S. S. Lyon sends from Kobé, February 10, 1903, clipping from the Kobé Herald entitled "Future of the Empire's railways," which reads:

The total mileage of railways open to traffic at the end of 1900 was 4,025 miles, of which 1,059 miles belonged to the Government and 2,966 miles to private companies. The total outlay for the construction of permanent ways was 122,924,592 yen (\$61,216,447) on the Government and 207,402,192 yen (\$103,286,292) on private railways. The total net profit of the Government railways in 1900 was 8,418,123 yen (\$4,192,225), and the profit for the ensuing year is estimated at 8,785,089 yen (\$4,374,974). The Hokkaido Railway is estimated to yield a profit of 206,501 yen (\$102,837) this year. Subsidies of 269,808 yen (\$134,364) have to be paid to the Nippon Railway Company, 341,348 yen (\$169,991) to the Seoul-Fusan Railway, and 689,338 yen (\$343,290) to the Hokkaido Railway. Of course, all these subsidies have to come out of the Government railways' earnings. The total profits of the private railways in 1900 aggregated 16,579,647 yen (\$8,256,664), and so it is clear that our railroads, both Government and private, offer positive and satisfactory returns. However, as compared with other productive enterprises, the rate of profit is, comparatively speaking, low. The Government lines have been laid along the principal thoroughfares in the interior and the private lines have been constructed where the largest percentage of returns is assured, and consequently their returns must be large; but in lines to be constructed for political and strategic considerations the receipts will naturally be less than those of the lines already constructed. Naturally, the private companies will avoid such projects, and in the event of the nation undertaking the task the national treasury must be prepared to meet a probable loss. With the Government lines bringing only 8,000,000 yen (\$3,984,000) per annum, it would be difficult to justify, from the standpoint of the financial administrator, the construction of lines from which there is no possibility of returns. Further, on our railroads the number of passengers

conveyed is larger than the volume of freight carried, and the greater part of the receipts is from passengers. This is quite opposite to the experience on railways in Europe and the United States, where freight yields the bulk of the earnings. In 1900, the amount received from passengers on Government railways was 10,880,000 yen (\$5,418,240), while the freight receipts amounted only to 5,490,000 yen (\$2,734,020). Private companies received 79,130,000 yen (\$39,406,740) from passengers and 11,770,000 yen (\$5,861,460) from freight. This is not due to an enormous number of passengers conveyed, but to the scarcity of freight; and the reason for the lack of goods is that the connection between sea and land traffic is not satisfactory. This state of things compels shippers to choose marine transportation. It must be admitted, too, that communication by land is in an incomplete state. Unless the system of communication in general be improved, the revenue from railways will not increase, nor will the receipts from freight be large.

TARIFF AT MURORAN.

Under date of January 27, 1903, Mr. Ferguson, secretary of legation at Tokyo, incloses copy of an imperial ordinance, issued January 21, 1903, revising the import tariff at Muroran. The ordinance reads:

ARTICLE 2. At the port of Muroran, the following articles may be imported:
Sugar.

Beverages and comestibles (only those mentioned in group 2, class 1, of the import tariff appended to the law of the fixed rates of customs tariff).

Rails and bolts, nuts, chairs, dog spikes, and fish plates thereof.

Apparatus for agriculture and carpentering, and parts thereof.

Ropes and cords of flax, hemp, jute, manila hemp, and china grass.

Printing paper.

Paint oils.

Oil and wax (only those mentioned in group 10, class 1, of the import tariff appended to the law of the fixed rates of customs tariff).

Articles exempted from duties (only those mentioned in class 11 of the import tariff appended to the law of the fixed rates of customs tariff).

This ordinance shall come into force on and after the 1st day of February of 1903.

CHINESE EXPORTS TO THE UNITED STATES.

The total exports from China to the United States in 1902, as valued in the invoices registered at the various consulates, amounted to \$27,189,283.11 in United States gold. This amount was shipped from the following ports:

Shanghai.....	\$14,610,524.65
Canton.....	5,405,879.61
Tientsin.....	2,949,406.64
Amoy.....	2,440,565.01
Fuchau.....	1,118,053.00
Hankau.....	542,765.38
Chefoo.....	122,088.82
Total.....	27,189,283.11

The classification is shown in the table annexed. The imperial maritime customs valued the trade from China to the United States in 1901 at \$11,932,551.36 gold. From the best information at my disposal at the time, I estimated this trade in 1901 at \$16,616,287.57. Taking the estimate as probably more nearly correct than the customs returns, the gain in 1902 is \$10,572,995.

Judging by the statement of shipments from Shanghai annexed, we have regained the flourishing trade that existed before the Boxer trouble.

During the year, silver has depreciated 12 per cent, but prices of commodities in silver here have risen as the silver has fallen, so that the gold values have changed little during the year.

JOHN GOODNOW,
Consul-General.

SHANGHAI, February 10, 1903.

Value of exports declared at the various United States consulates in China for the United States in the year 1902.

Article.	Value.	Article.	Value.
Albumen.....	\$12,344.42	Musk.....	\$69,430.23
Antimony.....	81,359.37	Nut oil.....	177,855.34
Bristles.....	397,962.85	Paper.....	33,227.85
Calfskins.....	51,137.40	Pongees.....	45,427.20
Cassia.....	190,546.14	Preserves.....	15,193.03
China ware.....	30,645.62	Rattan wares.....	27,367.03
Chinese clothing.....	18,912.14	Rugs.....	158,372.68
Cowhides.....	585,106.60	Sheepskins.....	76,435.52
Crackers.....	163,328.17	Silk.....	10,643,950.27
Curios.....	19,084.06	Piece goods.....	18,185.58
Dogskins.....	71,362.64	Waste.....	15,122.38
Fans.....	75,466.36	Skin robes.....	38,856.33
Feathers.....	32,835.13	Skins, various.....	51,215.44
Fish nets.....	12,720.50	Straw braid.....	538,472.08
Fruits.....	11,346.50	Sundries.....	286,676.73
Furs.....	61,078.43	Tea.....	7,447,822.86
Gallnuts.....	40,755.33	Wooden wares.....	24,824.85
Goatskins.....	2,127,267.87	Wood oil.....	59,178.59
Grass cloth.....	18,099.50	Wool.....	2,039,895.06
Hats.....	77,549.35	Total.....	27,189,283.11
Matting.....	1,303,881.18		
Miscellaneous.....	38,984.32		

Value of exports declared from the consular district of Shanghai, China, to the United States in 1900, 1901, and 1902.

Article.	1900.	1901.	1902.
Albumen	\$3,945.41	\$6,305.89	\$12,344.42
Antimony	15,013.43	2,411.77	81,359.37
Bristles	35,749.86	73,421.09	80,562.31
Calfskins	71,957.54	17,834.47	50,245.79
China grass		14,392.91	
Chinese clothing	13,410.63	14,194.06	17,636.64
Cotton		8,296.35	
Cowhides	1,002,074.08	559,687.25	566,851.73
Dogskins			69,091.89
Feathers	15,944.53	3,866.33	31,879.37
Furs	77,571.03	48,355.54	52,998.02
Gallnuts	33,198.90	19,255.65	39,094.83
Goatskins	780,882.87	995,215.71	1,492,568.50
Hats	24,148.86	44,578.06	77,549.35
Matting		19,246.54	1,530.94
Musk	45,142.70	58,353.30	68,910.93
Nut oil	55,700.61	23,611.87	153,374.19
Pongees		2,423.93	39,523.11
Porcelain			2,624.31
Rhubarb	13,866.12		6,610.41
Robes		20,429.68	
Rugs	39,581.87	15,128.27	17,548.33
Sheepskins	36,715.56		51,525.35
Silk	7,102,764.56	4,707,238.81	7,225,183.79
Piece goods			8,971.19
Waste	37,460.04		15,122.38
Skins, various	47,320.26	5,475.34	26,676.07
Straw braid	421,618.77	357,882.73	323,755.21
Sundries	108,542.69	94,826.55	63,563.70
Tea	3,463,545.64	1,615,307.01	3,532,192.10
Wood oil			59,178.59
Wool	651,502.05	388,547.56	488,051.83
Total	14,097,658.21	9,116,287.57	14,610,524.65

CANADIAN RAILWAYS AND CANALS.

The annual report of the department of railways and canals for the fiscal year 1902, just issued, shows that the total expenditure on railways during the year was \$13,407,152, of which \$5,430,360 were chargeable to capital account. There were paid as subsidies to railways other than Government roads \$2,093,939.

The expenditure on canals was \$2,978,770, of which \$2,114,689 were chargeable to capital account.

The total revenue derived from Government works was: Railways, \$5,918,990; canals, \$300,413, of which \$233,037 were derived from tolls and \$57,375 from hydraulic rents. Since confederation the total expenditure for railways has been \$258,800,654. On canals, since 1867, there has been expended \$103,484,545.

The number of miles of completed railway in the Dominion is 18,868, an increase of 574 miles over the previous year. There are 558 miles of electric railway.

The gross earnings of Government roads for the year were \$5,918,990, an increase of \$705,609; the working expenses were \$5,861,099, an increase of \$122,048; and the net gain, \$57,890.

FELIX S. S. JOHNSON,
Commercial Agent.

STANBRIDGE, *February 18, 1903.*

COMMERCIAL LOYALTY IN CANADA.

Coaticook, Quebec, being situated in the midst of an agriculturally rich section of country, possessed by a sturdy and thriving population, naturally attracts a large retail trade. Most of the goods found on the shelves are of Canadian production and manufacture, or imported from countries other than the United States. Comparatively few of our goods are offered for sale. No commercial travelers carrying American articles come here, although they are free to drum trade and there is no duty on their samples. As far as possible, merchants are loyal to the Canadian producer. Home production is daily meeting the demand. In some lines, in which there is competition between the American and the Canadian or English articles, we are holding our own and more, but it is because of the unquestioned superiority in style, quality, workmanship, or durability. The actual consumer is probably quite largely influenced by the price, which is affected by the duty paid; yet with both consumer and middleman, there is a strong element of what I have called commercial loyalty to the home, or the mother, country. The expansion of industries in Canada is very great, and United States capital is establishing factories in all parts of the Dominion for almost all lines of work. When the time comes that Canada can largely supply her own demands, she will surely buy less of us, and if she should find herself burdened with a surplus we may meet her competition elsewhere.

FRANKLIN D. HALE,
Consul.

COATICOOK, *February 2, 1903.*

PROPOSED LAKE CHAMPLAIN-ST. LAWRENCE CANAL.

Some years ago, a Canadian conceived the idea of building a canal connecting the Richelieu River, at St. John's, with Montreal direct, thus cutting off the route via Sorel. The project has now been revived, the chief mover being Mr. A. J. Corriveau, of Montreal, who is now in New York in the interest of the plan. He intends to construct a 14-foot water connection between the St. Lawrence River, at Montreal, and the head of Lake Champlain.

The company will also endeavor to secure the right to extend another section from the lower limit of the lake to tide water on the Hudson. It is thought here that the building of these two sections and the connection with the already completed St. Lawrence water way will render the improvement of the Erie Canal unnecessary, and that a great part of the trade with New England could be diverted to pass through Montreal.

The charter, which was awarded at the last session of Parliament, provides that the canal shall have a depth of not less than 9 feet and a width of not less than 80 feet at the bottom. If carried out as proposed, it will have a depth of 14 feet, corresponding with that of the St. Lawrence canals. Its length is $18\frac{1}{4}$ miles. The present connection between Lake Champlain and the St. Lawrence is by the Richelieu River and the Chambly Canal, the oldest of the Canadian artificial water ways. The Chambly Canal reaches the St. Lawrence at Sorel, 45 miles below Montreal, and is a 7-foot water way with locks 18 feet wide. Arrangements are made in the plan to increase the depth of the Lake Champlain and St. Lawrence ship canal to 21 feet, when the Georgian Bay Canal is built.

FELIX S. S. JOHNSON,
Commercial Agent.

STANBRIDGE, *February 17, 1903.*

NEW INDUSTRIES IN ONTARIO.

The year just closed has been one of extraordinary prosperity and business development for Canada, and the year 1903 promises to witness a still greater degree of activity and progress along business lines. New enterprises are springing up all over the Dominion, while existing concerns, in many cases, are increasing their capacities to meet the demands of larger trade. These conditions are notably true not only of Toronto, but of nearly every part of the Province of Ontario. Among the new enterprises being established in Canada, not a few are by United States firms which find it more profitable to manufacture here for Canadian trade than to pay the duty, which in many cases is so high as to practically preclude them from successfully competing with Canadian makers of similar products.

Below is given a partial list of newly incorporated companies (mostly Canadian) preparing to begin operations in the Province of Ontario, from which it will be seen that the Canadians are alive to the desirability of preserving, as far as possible, the home field for home industries:

The Dominion Linen Mills Company, of Toronto, has been incorporated with a capital of \$250,000 to manufacture linens, cottons,

and other textiles. The provisional directors include C. McEachren, W. B. Hill, and D. Grimston, all of Toronto.

Mr. A. H. Clarke, of Windsor, Ontario, is the Ontario representative of the O. & W. Thum Company, a Michigan corporation which has been licensed to do business in Ontario for the manufacture of sticky fly paper, castor oil, etc., with a capital of \$35,000.

Messrs. Puddy Brothers, of Toronto, are applying for permission to establish a pork-packing industry, to cost about \$100,000.

The Belleville Packing Company, of Belleville, Ontario, has been incorporated with a capital of \$50,000, to manufacture lards, meats, etc. The provisional directors include Sir Mackenzie Bowell, B. J. Graham, and H. C. Hunt, all of Belleville; and H. Hunter, of Toronto.

The Imperial Paper Mills, of Toronto, has been incorporated with a capital of \$3,000,000, to carry on the business of manufacturing paper, lumbering, and saw milling, and to acquire the pulp, timber, water powers, etc., of the Sturgeon Falls Pulp Company. The provisional directors include L. G. McCarthy, A. M. Stewart, both of Toronto; and C. W. Rantoul, of Sturgeon Falls, Ontario.

E. N. GUNSAULUS,

TORONTO, *February 26, 1903.*

Consul.

TRADE OF VERACRUZ.

The following annual report by Consul W. W. Canada, of Veracruz, was received too late for publication in Commercial Relations, 1902:

HARBOR AND CITY IMPROVEMENTS.

Since last year, the extensive harbor improvements at Veracruz have been completed and the work has been accepted by the Federal Government. The port is now safe in any weather and has ample docking facilities, the railroad wharves being furnished with hydraulic cranes for the discharging and loading of vessels. Further improvements are still under way. The reclaimed lands that were filled with sand excavated by the dredgers from the harbor bottom are now receiving a top dressing of clay. When this has been accomplished, permanent railroad tracks will be laid along the whole harbor front, and freights destined to interior points can be loaded direct from the vessel on board cars.

Substantial stone custom-house warehouses have been erected, and commodious structures for the light-house department of the Gulf and for the telegraph and postal departments are in course of

construction. The old custom-house has been enlarged and remodeled and when completed will materially facilitate the transaction of business. A special passenger landing pier and a baggage examining room have been provided. A complete modern disinfecting plant has been located here.

Light-houses have been erected at a number of points on the Gulf coast, and four more are at present in course of construction—one on the eastern coast of Yucatan, one in the Gulf of Campeche, one at the entrance to the port of Veracruz, and the other some distance north of the port of Tampico. The harbor of Veracruz is also provided with a complete system of lights.

The city of Veracruz is undergoing a change; much land formerly considered of little value has been laid out in blocks and fenced in. Land that could be had some years ago for 10 cents a square meter can not now be had for less than three times that sum. The city has outgrown its ancient limits, and the population has increased. An extensive system of drainage is under way, and in a short time the city will be supplied with water from a new reservoir and water mains. The streets are to have asphalt pavements. Many of the old buildings have been remodeled and a handsome theater has been erected in place of the one destroyed by fire several years since. When all these improvements shall have been effected it is expected that the health of the city will be very much improved.

RAILWAYS AND STEAMSHIP LINES.

Aside from being the principal port of the Republic of Mexico, Veracruz is now the terminal point of a number of railroads in operation or in course of construction. When these roads are in running order there will be an uninterrupted line of railway from any part of the United States to Coatzacoalcas, on the Gulf, and to Salina Cruz, on the Pacific. From this latter point any part of the Pacific coast may be reached by steamer.

The coastwise traffic, formerly carried on by the Romano y Berretega Steamship Company with a fleet of seven steamers under the Mexican flag and with a home port at San Juan Bautista, Tabasco, is now entirely in the hands of a new company known as the Compañia Mexicana de Navegacion, in which the New York and Cuba Mail Steamship Company has a large interest. This company contributed its fleet of four steamers, formerly engaged in connection with its New York line; and the new company, having purchased two boats expressly constructed for this trade in England, now operates a fleet of 13 steamships.

Since the investigations made by the United States Army medical service during the temporary occupation of Cuba, the Mexican

authorities have repealed certain quarantine regulations providing for the disinfection of baggage and merchandise, believing that yellow fever is transmitted only by mosquitoes.

IMPORTS.

Notwithstanding that the gross weight of the imported merchandise for the fiscal year 1901-2 exceeds that of the previous year by 55,327 tons, the United States has lost 28,017 tons in the carrying trade. Other countries affected are England (13,252 tons) and France (2,247 tons); but Germany gained 2,517 tons in tonnage carried and Spain 21,920 tons.

The total value of imports from all countries for the fiscal year was as follows:

1900-1901.....	\$22, 349, 788
1901-2.....	20, 986, 602
Decrease	1, 363, 186

This falling off, however, did not affect the United States, as the following figures will clearly show:

Total value of imports from the United States.

1901-2.....	\$4, 644, 726
1900-1901.....	4, 486, 173
Increase.....	158, 553

The falling off in the imports affected England to the value of \$687,230; Germany, \$228,334; Spain, \$142,810; and France, \$69,181. The importation of liquors, paper, machinery, and other articles of minor importance shows a decrease, whereas in all other lines a slight improvement is observed.

EXPORTS.

There has been a remarkable increase in the amount of exports through Veracruz to the United States for the fiscal year 1901-2, as the following figures indicate:

Exports to the United States.

1901-2.....	\$12, 549, 981
1900-1901.....	7, 778, 128
Increase.....	4, 771, 853

This increase is equal to over 61 per cent, as compared with the exports of the previous year, and the principal commodities affected are: Coffee, 76 per cent; goatskins, 47 per cent; hides, 68 per cent; and vanilla, 84 per cent. In fact, the gain is noticeable all along

the line of exports, with the exception of precious metals and a few other articles.

Cuba, also, has been an important factor in the increase of Mexico's exports, the report showing a total value of \$1,881,149, the principal items being \$407,915 for beans and \$415,126 for chick-pease.

SUGAR.

In the report for the fiscal year 1900-1901,* mention is made of the export of sugar from the port of Veracruz as a new feature, the quantity for that year having reached the respectable figure of 800,000 pounds. Not a single shipment, however, was made from here during the last year. This consular district comprises within its limits some of the best sugar lands in the Republic of Mexico, and along the River Papaloapan and its tributaries an enormous quantity of sugar cane has been planted and several large sugar estates have been put into active operation. Mexico has heretofore consumed more sugar than was produced in the country, but this state of affairs is likely to undergo a change in the near future.

STATISTICS.

Vessels and amount of cargo arrived at the port of Veracruz during the fiscal year 1901-2.

Nationality.	Total.			
	Vessels.		Cargo.	
	Number.	Tonnage.	Tons.†	Packages.
American, for 1900-1901.....	85	232,632	67,695	784,574
American	88	250,008	39,678	944,062
English	96	306,083	159,275	1,250,832
Spanish	61	243,264	67,877	518,748
Norwegian	62	107,924	95,648	535,308
German	29	90,415	27,583	350,491
French	12	71,513	5,555	97,513
Swedish	1	2,118	2,955	.....
Mexican	4	3,711	829	57
Dutch	4	10,928	11,710	5,670
Uruguayan ..	1	2,232	147	629
Total for 1901-2.....	358	1,088,196	411,257	3,703,310
Total for 1900-1901.....	338	913,698	355,930	2,932,849

* See Commercial Relations, 1901, Vol. I.

† Tons of 2,000 pounds each.

Principal imports through Veracruz during the fiscal year 1901-2.

Country.	Animal products.	Vegetable products.	Mineral products.	Cloths and textures.	Chemical products.	Liquors and fermented products.
United States.....	\$194,467	\$1,362,110	\$1,825,081	\$122,603	\$153,319	\$24,025
England.....	84,079	369,113	990,342	1,917,409	143,962	43,035
France.....	331,370	249,418	508,155	1,492,184	221,893	734,426
Germany.....	215,282	220,373	892,776	744,017	353,434	51,405
Spain.....	185,825	376,228	84,990	118,121	40,104	630,980
Total for 1901-2.....	1,254,821	2,849,751	5,152,666	4,794,767	957,095	1,539,151
Total for 1900-1901.....	1,463,265	2,674,141	5,266,509	5,336,689	855,864	1,573,396

Country.	Paper and its manufactures.	Machinery.	Vehicles.	Articles not classified.	Total.
United States.....	\$122,532	\$612,252	\$74,262	\$154,075	\$4,644,726
England.....	28,691	737,484	32,632	83,527	4,431,746
France.....	252,174	358,035	31,144	259,102	4,437,901
Germany.....	239,694	427,032	6,483	149,519	3,300,015
Spain.....	377,616	41,346	1,600	69,409	1,926,228
Total for 1901-2.....	1,135,159	2,300,334	159,315	843,543	20,986,602
Total for 1900-1901.....	1,309,346	2,759,637	164,164	946,777	22,349,788

Vessels and amount of cargo carried from the port of Veracruz during the fiscal year 1901-2.

Nationality.	Total.			
	Vessels.		Cargo.	
	Number.	Tonnage.	Tons.*	Packages.
American, for 1900-1901.....	82	224,344	25,142	393,875
American.....	85	242,716	32,164	453,411
English.....	82	260,345	8,162	100,347
Spanish.....	61	244,757	3,413	35,753
Norwegian.....	50	105,504	265	3,542
German.....	28	89,604	3,235	80,058
French.....	12	71,513	3,132	45,831
Swedish.....	1	2,118		
Mexican.....	1	92		
Dutch.....	5	2,957	550	4,538
Uruguayan.....	1	2,232	134	1,710
Total for 1901-2.....	335	1,021,838	51,055	725,190
Total for 1900-1901.....	321	916,376	43,061	654,468

* Tons of 2,000 pounds each.

Principal exports through the port of Veracruz during the fiscal year 1901-2.

Article.	Amount.	Value.	
	<i>Metric tons.</i>	<i>Mexican.*</i>	<i>U. S.</i>
Silver ores.....	1,909	\$469,650	\$216,039
Silver coin.....		5,315,000	2,444,900
Coffee.....	18,436	8,630,377	3,969,973
Rubber.....	91	204,888	94,248
Beans.....	3,416	408,646	187,977
Pease.....	3,700	864,148	397,508
Dyewood.....	2,995	95,373	43,872
Onyx.....	888	84,558	38,897
Goatskins.....	641	929,400	431,528
Hides.....	1,557	726,490	334,185
Broom root.....	3,228	1,313,973	604,428
Leaf tobacco.....	1,082	958,215	440,779
Cigars.....	206	571,332	262,812

* 1 Mexican peso=46 cents.

Total exports through the port of Veracruz according to countries of destination.

Article.	Amount.	Value.	
	<i>Metric tons.</i>	<i>Mexican.*</i>	<i>U. S.</i>
United States.....	27,232	\$12,549,981	\$5,772,991
England.....	3,692	6,528,662	3,003,184
France.....	3,840	1,971,143	906,726
Germany.....	4,331	2,481,361	1,141,426
Spain.....	2,110	598,383	275,256
Belgium.....	487	490,426	225,506
Other countries.....	9,664	1,978,894	910,291
Total.....	51,356	26,598,850	12,235,470

* 1 Mexican peso=46 cents.

COMMERCE OF COSTA RICA IN 1902.

I transmit herewith a report on the commerce and industries of Costa Rica for the year ended December 31, 1902:

IMPORTS.

Country of origin.	Value.	Percent- age.
	<i>Gold.</i>	
United States.....	\$2,048,809.42	53.96
Great Britain.....	906,679.16	23.89
Germany.....	472,991.60	12.46
France.....	198,600.11	5.23
Spain.....	75,146.20	1.95
Italy.....	65,059.63	1.71
Other countries.....	27,266.03	.8
Total.....	3,794,642.15	100

In addition to the foregoing imports, merchandise valued at about \$95,000 arrived by parcels post during the first eleven months of the last year; cattle arrived from Nicaragua to the value of \$288,634.80.

The statistical office does not classify imports, but they are practically the same as in recent years. Those from the United States include food stuffs, machinery and tools, cotton prints, dynamite, drugs, paints, and oils.

Owing to increased tariff rates, the importation of boots and shoes is very small. Certain patent medicines and drugs have been almost driven out of the market for the same reason. The importation of furniture has also decreased.

Attached are figures prepared by the statistical office, showing the importation of food stuffs from the United States and Europe for the years 1901 and 1902.

EXPORTS.

The force in the statistical office has been reduced, and therefore the figures covering exports will not be completed for several weeks. It is estimated, however, that the total exportation will approximate \$4,500,000. The exports are the same as in recent years. They include coffee, bananas, hides, rubber, mahogany and other tropical woods, cacao, oranges, pineapples, and gold bullion.

RAILWAYS.

The Pacific Railroad has been completed to Santo Domingo, 41 miles from San José, and will in a few days be turned over to the Government by the American contractors, Messrs. Lynn & Casement. The original contract called for the construction of a railway from San José to the Pacific and of a port on the coast. It was also understood that the line should be extended to the port of Tivives, some distance south of Punta Arenas; but later the Government decided to postpone the construction of this branch pending settlement of the question as to whether Esparta is not the better destination. From the latter point there is a Government railway 13 miles long running to Punta Arenas.

Meanwhile, the public road from Santo Domingo to Esparta has been put in good condition, and it is the intention of the Government to establish a line of ox carts for freight and of omnibuses for passengers, and to so arrange the train schedules that it will be possible to make the journey from San José to Punta Arenas, or vice versa, in a day. In view of the very high freight charges on the Costa Rica Railway, it is thought that when the new line is in full

operation it will be advantageous, in spite of the numerous transshipments, to ship by way of Punta Arenas and the Isthmus a portion of the coffee which now goes to Europe and New York via Port Limon.

Whether the Costa Rica Railway will meet this competition, or whether the longer time required to reach the European and New York markets via the Isthmus route will offset any reduction in rates, will require another season to determine, as the present coffee crop has already been shipped or contracted for.

The Northern Railroad Company, a corporation closely allied to the United Fruit Company, has now completed, in main line and branches, about 60 miles of track. The road runs from Port Limon some miles inland, with a number of spurs connecting the various banana plantations with the main line. It is primarily a banana road, but also maintains a passenger service between Port Limon and Zent, the present terminus.

NEW PIER.

The same company is constructing a new pier at Port Limon. The description of this pier and the terms of the Government contract, under which contract it is being constructed, appear in the October (1902) CONSULAR REPORTS. The pier is to have a length of 300 meters (734 feet) and a width of not less than 15 meters (50 feet); a foundation of wooden piles covered with copper composition; a flooring of wood, superstructure of iron, and roof and sides of corrugated iron. When completed, it is to become Government property and be placed at the service of the public. The company is under obligation to keep the pier in good condition, and for this purpose may charge wharfage according to a tariff yet to be prescribed. Vessels of the Costa Rica Government will be exempt from these charges. The company is also granted the right to extend its railway onto the pier. The Government, however, reserves the right to lay, whenever necessary, rails to transport merchandise to and from the custom-house. All material used in constructing the pier is admitted duty free. Material for both the railroad and pier comes from the United States.

STEAMSHIP LINES.

The means of communication on the Atlantic coast are practically the same as a year ago. The Hamburg-American Steamship Company maintains a weekly service between Port Limon and New York. On the outward voyage, steamers call at Kingston, Jamaica, several Colombian ports, and twice a month at San Juan del Norte,

Nicaragua. Returning, the voyage is to New York direct, except that one steamer a month calls at Kingston. Time out, fourteen days; return, seven and one-half days.

The steamers of the United Fruit Company run to New Orleans, Mobile, and Charleston. To New Orleans there are, on an average, three steamers a week; to Mobile, a steamer every week at some seasons, and at others every two weeks; to Charleston, one a week. Time to or from New Orleans or Mobile, five days; to or from Charleston, six to seven days.

Between Port Limon and Europe there are the following lines: Royal Mail Steam Packet Company (English), twice a month; Hamburg-American, monthly; *Compañia Trasatlantica Española* (Spanish) and *Compagnie Générale Transatlantique* (French), monthly.

The steamers of the fruit company bring passengers the year round, but take no passengers to the United States during the quarantine season—from the middle of March or 1st of April to the 1st of November.

On the Pacific side, the Pacific Mail Company affords a regular service between San Francisco and Panama, calling at Mexican and Central American ports. Steamers from San Francisco touch at Punta Arenas twice a month and on the return trip three times a month; time, about twenty days.

The Chilean Line has withdrawn its steamers from this service and those of the Kosmos Line (German) call only occasionally.

I attach statement showing the maritime movement at the ports of Port Limon and Punta Arenas during 1902.

RATE OF EXCHANGE.

The gold standard has been steadily maintained since July, 1900, and is firmly established. During the year, the average of exchange has been slightly below par.

IMPORT DUTIES.

Reference was made above to the increase of import duties. By various decrees issued in July and August, changes were made in duties on wines and liquors, furniture, certain drugs and medicines, toilet articles, oils, etc. Of liquors and furniture, a reclassification was made. These changes were reported as the decrees appeared, and some of the new schedules were published in the October (1902) CONSULAR REPORTS. The effect of these changes is a substantial increase in duties on the articles named.

Chemical laboratories have been established at the San José and

the Punta Arenas custom-houses for the inspection and classification of foods and drinks, drugs, medicines, etc. Articles entered at Port Limon are forwarded to San José for inspection.

JOHN C. CALDWELL,

SAN JOSÉ, February 24, 1903.

Consul.

Importation of principal food products from the United States and Europe during the years ended December 31, 1901 and 1902.

Article.	United States.		Europe.	
	Quantity.	Value.	Quantity.	Value.
	<i>Met. tons.</i>		<i>Met. tons.</i>	
1901.				
Rice	256.4	\$16,663.77	1,518.5	\$90,383.55
Sugar:				
Refined	2.5	347.02	3.7	282.33
Ground			12.8	370.34
Beef in barrels	232	21,767.90		
Pork	86.7	9,825.62		
Wheat flour	4,326	215,372.26		
Corn meal	68.2	5,004.65	1.3	93.25
Beans	149	15,282.47	2.5	28.60
Pease	11	732.80	6.9	74.09
Lard	678	121,224.35	3.3	1,750.25
Butter	38	8,357.25	16.3	7,995.12
Tobacco:				
Leaf	33	12,788.41		
Manufactured	102	36,735.19	9.8	17,352.33
Chewing	98	28,887.08		
Total for 1901	6,080.8	403,078.77	1,575.1	118,320.86
1902.				
Rice	458	27,211.65	1,582	58,488.32
Sugar, refined	2.3	279.17	1.8	120.00
Beef in barrels	165.9	19,115.41		
Pork	105.8	13,213.50		
Wheat flour	4,455.9	246,616.47		
Corn meal	317.3	19,111.74		28.75
Beans	79.7	6,904.68	3.5	289.16
Pease	17.6	1,295.40	4.1	860.80
Lard	769.5	145,604.61		
Butter	73.5	13,758.55	29	5,903.85
Tobacco:				
Leaf	50	18,785.46		
Manufactured	2	1,106.88	20	21,966.56
Chewing	121	41,157.98		
Total for 1902	6,618.5	354,251.59	1,640.4	87,675.44

Maritime movement at the Port of Punta Arenas during the year ended December 31, 1903.

Nationality.	Entered.			Cleared.		
	Vessels.	Registered tonnage.	Passengers carried.	Vessels.	Registered tonnage.	Passengers carried.
<i>Steam.</i>						
British.....	24	34,232	57	24	34,232	108
American.....	63	111,856	495	63	111,856	585
Chilean.....	16	24,202	41	16	24,202	34
German.....	9	16,713	21	9	16,713	7
Norwegian.....	1	1,210				
Costa Rican.....	2	8	12	2	8	6
<i>Sail.</i>						
British.....	1	1,288				
German.....	8	9,039		7	7,978	
Norwegian.....	4	4,601		3	2,420	2
Danish.....	2	1,658		2	1,658	
Colombian.....	25	468	49	4	241	11
Total.....	155	205,305	675	135	199,308	753

Maritime movement at the Port of Limon during the year ended December 31, 1903.

Nationality.	Entered.			Cleared.		
	Vessels.	Registered tonnage.	Passengers carried.	Vessels.	Registered tonnage.	Passengers carried.
<i>Steam.</i>						
British.....	92	139,172	1,279	91	137,793	756
German.....	97	145,450	1,899	97	145,450	1,335
Norwegian*.....	57	38,077	37	57	38,077	26
American †.....	49	38,239	222	49	38,239	196
French.....	21	34,660	360	21	34,660	316
Spanish.....	12	36,710	181	12	36,710	460
Danish*.....	11	15,617	2	11	15,617	
Swedish*.....	9	6,147		9	6,147	1
Dutch.....	1	2,092		1	2,092	
Costa Rican ‡.....	6	24	41	6	24	30
Colombian ‡.....	1	2	8	1	2	3
<i>Sail.</i>						
British.....	10	112	24	10	112	51
Costa Rican.....	16	242	39	16	242	35
Nicaraguan.....	6	103	33	6	103	12
American.....	1	798		1	798	
German.....	1	2	3	1	2	15
Colombian.....	1	600		1	600	
Total.....	391	458,047	4,128	390	456,668	3,236

* Engaged in fruit trade to the United States.

† Largely barges in the fruit trade and small launches running along the coast.

‡ Small launches.

RECAPITULATION.

Port.	Entered.				
	Steamers.		Sailing vessels.		Passen- gers carried.
	Number.	Regis- tered tonnage.	Number.	Regis- tered tonnage.	
Port Limon.....	356	456,190	35	1,857	4,128
Punta Arenas.....	115	188,221	40	17,144	675
Total.....	471	644,411	75	19,001	4,803

Port.	Cleared.				
	Steamers.		Sailing vessels.		Passen- gers carried.
	Number.	Regis- tered tonnage.	Number.	Regis- tered tonnage.	
Port Limon.....	355	454,811	35	1,857	3,236
Punta Arenas.....	114	187,011	21	12,297	753
Total.....	469	641,822	56	14,154	3,989

COMMERCE OF HONDURAS IN 1902.

I give below statistics of importations and exportations of the Republic of Honduras for the year 1902. The value of importations was \$4,377,161.42 (\$1,727,364 gold) and of exportations \$6,170,353.27 (\$2,437,289 gold). Details are presented in the following tables:

Exports by articles.

Article.	Value.	
	Pesos.*	\$
Metals.....	2,319,070	\$916,033
Fruits.....	1,943,168	767,551
Cattle.....	560,411	221,362
Coffee.....	275,826	108,952
Hides and skins.....	257,598	101,751
Wood.....	217,459	85,897
Tobacco and cigars.....	200,851	79,336
Indigo.....	105,425	41,643
Sarsaparilla.....	80,602	31,838
Rubber.....	77,552	30,633
Wheat and flour.....	66,992	26,462
Salt.....	22,716	8,973
Hats.....	14,150	5,589
Various (cheese, cinnamon, etc.).....	28,529	11,269
Total.....	6,170,353	2,437,289

* The peso in 1902 was valued at 39.5 cents.

Exports by countries.

Country.	Value.	
	<i>Pesos.</i>	
United States.....	4,077,108	\$1,620,458
England.....	778,293	307,426
Central America.....	775,473	306,312
Cuba.....	303,509	119,435
Germany.....	136,214	53,805
Belize.....	52,141	20,566
France.....	20,410	8,062
Mexico.....	14,490	6,158
Other countries.....	12,711	5,021
Total	6,170,353	2,437,289

To England are shipped metals; to Central America, cattle, indigo, tobacco, wheat, salt, hats, and coffee; to Cuba, Mexico, and Belize, cattle; to Germany, coffee, wood, hides, and rubber; and to France, coffee.

Importations in 1902.

Country.	Quantity.		Value.	
	<i>Packages.</i>	<i>Tons.*</i>	<i>Pesos.</i>	
United States.....	370,324	12,886.0	2,841,484	\$1,122,386
Germany.....	15,242	970.4	583,880	230,633
England.....	6,391	415.6	476,808	188,339
France.....	2,020	122.3	110,101	43,490
Italy.....	326	20.8	25,820	10,199
Belgium.....	2,392	128.6	17,705	6,903
Other European countries.....	53	3	7,275	2,873
Belize.....	11,282	385.3	158,165	62,475
Central America.....	12,088	422.6	124,108	49,058
Spanish American countries.....	210	10.3	9,438	3,728
China.....	30	1.5	17,950	7,090
Total	421,688	15,273.3	4,377,161	1,727,364

* Of 2,205 pounds.

PUERTO CORTES, *February 24, 1903.*

WILLIAM E. ALGER,
Consul.

MINING ENTERPRISES AND LIMITED COMPANIES OF BOLIVIA.

Minister Sorsby transmits from La Paz translation of a recent decree of the Bolivian Government relating to limited companies and mining enterprises doing business in Bolivia, which reads:

ARTICLE I. Limited companies and mining enterprises, be their owners private persons or associations of other denomination or class, are obliged to keep books, as indicated in article 32 of the mercantile code, and also a register of the fineness of the metals they export.

ART. 2. The associations and enterprises designated in the foregoing article shall draw up their respective balance sheets and shall send two copies to the Minister of Finance and Industry or to the office of fiscal inspection within the forty days following the termination of the year, without omitting the publication and remittance to be effected by said associations in accordance with the supreme decree of March 25, 1887.

ART. 3. Within the same period of forty days the payment of the fiscal tax of 2 per cent of the net profits must be made in the respective departmental treasury, in favor of the National Treasury.

ART. 4. For the purposes of the foregoing article, net profits shall be understood to be the sum set apart for the payment of dividends—or rather the gains of the partners or owners, whether they reside within the Republic or abroad.

ART. 5. The dispositions contained in articles 3 and 4 of the decree of March 25, 1887, are applicable to mining enterprises, whether they be owned by private persons or associations.

ART. 6. The administrators of departmental treasuries are obliged, on their own responsibility, to give notice to the Ministry of Finance of such associations or enterprises as have not paid the fiscal tax within the period stated in article 3 of this decree.

ART. 7. A term of sixty days from the date of the publication of this decree is allowed for the mining enterprise and limited companies to be inscribed in the registers opened in the prefectures of the departments, in accordance with the aforementioned article 3 of the decree of March 25, 1887.

ART. 8. Any failure to comply with the dispositions contained in articles 1 and 2 of this decree will be punished with a fine of 500 to 1,000 bolivars (\$180.50 to \$361) imposed by the prefect of the respective departments, or the inspector named by the Government, on the guilty enterprises or associations; and, furthermore, their profits shall be calculated by special commissioners at the expense of the association or enterprise.

ART. 9. The same fine will be imposed on all enterprises or associations that fail to comply with the provisions of article 7.

ARTICLE 32 OF THE MERCANTILE CODE.

Every merchant shall, without fail, keep four mercantile books: (1) Journal; (2) ledger or current accounts; (3) book of inventories; (4) copy book.

ARTICLES 3, 4, AND 9 OF THE DECREE OF MARCH 25, 1887.

ART. 3. The registers that the prefects must cause to be formed in each capital of department, up to July 31 next, shall contain the title of the company, its object, its nominal and effective capital, and the name of the manager or administrator responsible for the payment of the tax. A copy of these data shall be sent to the administrator of the respective departmental treasury and to the Minister of Industry.

ART. 4. In the same register shall be inscribed the companies organized thereafter.

ART. 9. The general balances and the lists of shareholders shall be published annually in the report of the directors or of the representative within ninety days from the termination of the year.

INSPECTION OF CATTLE IN ARGENTINA.

Minister Lord sends from Buenos Ayres, February 4, 1903, clipping from a local journal containing the terms of the convention with Uruguay as to sanitary inspection of live stock, the completion of which was necessary to bring about a reopening of the British ports to Argentine stock. The clipping reads:

The following is the substance of the decree issued yesterday by the Minister of Agriculture:

The preamble states that, in addition to the alterations made in the regulations of February 15, 1902, it is convenient to specify the prescriptions to which the foreign commerce in cattle must be submitted, that of oversea as well as of the Oriental Republic of Uruguay, as regards relations with the latter.

ARTICLE 1. Prohibits (a) the importation or landing of animals, animal remains, etc., from any nation where contagious or infectious disease in animals exists which may be dangerous to the national live stock; (b) the importation of animals proceeding from a nation whose laws and regulations and their application do not, in the opinion of the Executive, offer a sufficient guaranty against contagion; (c) the importation from abroad through any other port than Buenos Ayres; (d) the importation of animals from a nation whose live stock may be imported into the Argentine Republic when those animals, though proceeding from a nation free from disease, may have originally come from a prohibited nation; (e) the importation of animals in a ship which has, within thirty days prior to their embarkation, loaded animals in a prohibited nation; (f) the importation of animals in a ship which after loading has been in contact with any kind of animals proceeding from a prohibited nation, or which has called at a port of any such nation; (g) the entry into an Argentine port of any ship which during the preceding sixty days shall have loaded animals of such a nation; (h) the importation of animals attacked by "garrapatas" (ticks).

ART. 2. Prohibits the exportation of animals attacked by contagious disease or suspected of being so, or bruised, and of those that have not undergone veterinary inspection in the estancia and at the port of embarkation, and have not been transported in disinfected vehicles; also exportation in a ship which has on board animals from a prohibited nation or has not been disinfected after having remained in or touched at, during the preceding sixty days, the port of a nation prohibited by reason of the cattle plague, or during thirty days, if prohibited on account of the existence of contagious perineumonia, foot-and-mouth disease, or glanders; also the exportation of cattle attacked by garrapatas.

ART. 3. For the purpose of this decree the nations mentioned in the decrees of the 9th and 16th instant are declared to be prohibited, and the prohibition will continue until in the opinion of the Executive the animals of the respective nations can be imported without danger.

ART. 4. Prescribes the documents that must be presented when animals are brought from a nation not prohibited, to show that the cattle plague has not existed during the preceding ten years in the country from which they proceeded and that neither perineumonia nor foot-and-mouth disease has existed there during the preceding six months; as regards sheep, it must also be shown that no case of smallpox in sheep has occurred during the six months; as regards horses, a similar proof is required in reference to glanders and lampas.

ART. 5. Provides for the inspection of vessels bringing live stock and states the

measures to be adopted in case all the animals should not be found to be in a perfectly sanitary condition.

ART. 6. Directs that in addition to the measures indicated in the foregoing articles, animals imported from countries not prohibited shall be submitted to the following prophylactic treatment: (a) Cattle to forty days' quarantine and tuberculinization, and if at the end of that time they give a diagnostic reaction of the tuberculine they are to be immediately slaughtered without compensation, or to be reembarked within eight days; (b) sheep are to be kept in quarantine and isolated for fifteen days, and horses for eight days. The latter may be inoculated at the end of the eight days, and are to be slaughtered without compensation if they give a diagnostic reaction or shall have been in contact, directly or indirectly, with any suffering from glanders. The periods of quarantine may be extended.

ART. 7. The foregoing measures are not applicable to the interchange of animals with the Republic of Uruguay, which shall be submitted to the following prescriptions: (a) Animals intended for storing, saladeros or consumption, or for work must be accompanied by a certificate from the inspector of the Ministry of Fomento, stating the origin, number, species, class, and race of the animals, and declaring that in the establishment from which they proceeded there does not exist and has not during thirty days preceding existed any case of cattle plague, contagious perineumonia, sheep smallpox, carbuncle, pink fever, neuromenteritis in pigs, equine syphilis, or rabies. Also, after March 15, there must be a certificate that the animals have been bathed in the official bathing place with an efficacious specific for killing ticks; (b) pedigree animals must be inspected on board, and if they appear to be in good health their disembarkation will be authorized, provided that they come accompanied by a certificate from the Ministry of Fomento declaring that they have undergone veterinary inspection and that in the department or "partido" whence they proceeded none of the diseases mentioned in the preceding section exists or has existed during thirty days preceding, and specifying the number, origin, species, class, and race of the animals certified.

ART. 8. Notwithstanding the preceding articles, the Government may apply prophylactic measures when it considers that sufficient reasons exist for so doing.

BLOCKADE OF THE ORINOCO.

The Department has received from Mr. Russell, secretary of légation at Caracas, under date of March 8, 1903, notice that the blockade, declared June 28, 1902, of the Orinoco is reestablished from March 7, 1903, and that the ports of Carupano and Guanto are blockaded from that date. The same number of days of grace are allowed as in the former decree, which provided:

1. Ships which have been dispatched for the blockaded ports shall have the following terms, after the present decree has been communicated to their respective governments allowed them to enter. Steamships proceeding from Europe, one month; sailing vessels, two months; steamships proceeding from the United States, fifteen days; sailing vessels, one month; ships proceeding from the West Indies and Demerara, whether steamers or sailing vessels, shall have a term of ten days, with the exception of those proceeding from Trinidad and Grenada, which shall have but two days.

- 2 Merchandise which is destined for any port within the line of blockade may, at the discretion of the owner, be disembarked at any other established customs port on payment of the respective customs duties.

3. On any vessel proceeding from any of the places above mentioned reaching the line of blockade, the commander of the nearest man-of-war shall communicate to him the order against crossing it, and in case he persist he shall be considered to wish to violate the blockade.

The Department has been informed, March 13, 1903, that the decree has been revoked.

TRADE OF CUBA.

The Department has received from Minister Squiers, of Habana, under date of February 6, 1903, the following statement of the value, in United States currency, of the importations into Cuba during the quarter ended September 30, 1902. The total value of importations from all countries was \$14,316,272. The share of the principal countries in this trade was:

United States.....	\$5,631,795
Germany.....	744,194
Spain.....	2,411,405
France.....	718,444
England.....	1,845,049

The chief articles of import were distributed as below:

Description.	United States.	Germany.	Spain.	France.	England.
Metals and manufactures.....	\$308,748	\$104,751	\$28,821	\$46,222	\$190,510
Stone, glass, and porcelain.....	185,660	57,663	81,676	35,394	35,010
Drugs, etc.....	233,281	26,666	211,178	120,794	74,477
Dry goods.....	130,815	82,184	459,936	280,523	854,209
Paper, books, etc.....	77,454	54,896	120,566	51,057	2,479
Lumber and wood.....	157,701	9,716	83,803	12,883	16,272
Live stock *.....	449,175		165		
Hides and skins.....	26,583		25,951	5,573	381
Meat products.....	168,462	3,580	360,055	11,756	3,059
Beef.....	1,144,931	692	45,652	1,058	2,366
Fish.....	38,277	609	83,993	736	34,806
Cereals.....	778,784	294,733	28,833	534	478,500
Vegetables.....	223,178	20,536	206,065	10,892	5,672
Instruments, machinery, and tools.....	411,213	43,894	6,641	28,562	21,213
Fruits.....	20,288	12	23,255	3,202	
Wines and liquors.....	40,803	10,707	556,154	35,095	66,686
Condensed milk.....	105,613	3,114	13,611	395	24,594
Provisions.....	408,057	1,143	12,253	2,004	2,579

* Central and South America also contributed live stock, to the value of \$1,505,796.

Exports during the same period amounted to \$21,194,173, against \$11,804,058 in 1901. The United States received about \$17,500,000; England, \$1,500,000; Spain, nearly \$600,000; and Germany, \$900,000. Sugar represented over \$13,000,000 of the total (against \$3,000,000 in 1901) and tobacco \$5,600,000.

TRADE AT SANTIAGO DE CUBA.

Consul R. E. Holaday sends from Santiago de Cuba, February 7, 1903, tables showing the imports and exports at that port for the quarter ended December 31, 1902. The consul adds:

The imports from the United States for the month of October are probably considerably in excess of a fair average, as large importations of railroad cars and material for use in the construction of the Cuba Central Railroad, and also mining machinery for use in the copper mines at El Cobre, were received during that month. November and December may be considered as furnishing a much fairer average for comparison as to general trade importations.

Exports from Santiago de Cuba for the quarter ended December 31, 1902.

Article.	October.	November.	December.	Total.
Bones.....			\$100.00	\$100.00
Cocoa.....	\$7,742.65	\$10,945.85	48,185.07	66,873.57
Honey.....	275.98	540.68	3,213.22	4,029.88
Hides.....	3,500.00	1,549.63		5,049.63
Iron ore.....	29,402.50	29,084.50	39,377.50	97,866.50
Lumber.....	12,628.25	12,854.45	18,049.07	43,531.77
Old metal.....	26,080.75	15,789.72	29,079.00	70,949.47
Rum.....	44.00			44.00
Sugar.....	25,971.63		12,786.82	38,758.45
Tobacco.....			353.53	353.53
Wax.....	1,820.85	107.00	2,886.99	4,814.85
Total.....	107,468.62	70,871.83	154,031.20	332,371.65

Imports at the custom-house in Santiago de Cuba for the quarter ended December 31, 1902.

Country.	October.	November.	December.	Total.
United States.....	\$370,710	\$109,048	\$153,492	\$633,250
Spain.....	75,498	56,751	89,152	221,401
England.....	55,884	73,027	62,880	191,791
Colombia.....	49,667			49,667
India.....	16,700	5,620	13,145	35,465
Nova Scotia.....	13,838	17,911	10,140	41,889
France.....	13,031	21,715	19,185	53,931
Germany.....	12,745	23,204	34,493	70,442
Porto Rico.....	8,193	5,160	283	13,636
Belgium.....	6,375	12	1,939	8,326
Haiti.....	2,590	1,203	9,370	13,160
Santo Domingo.....	2,250	2,088	5,833	10,171
Holland.....	1,143	651	1,737	3,531
Italy.....	869			869
Austria.....	612	40		652
Switzerland.....	273	881	5,678	6,832
Norway.....	213		135	348
Jamaica.....	12	20	342	374
China.....		715		715
Denmark.....		620	600	1,220
Newfoundland.....			141	141
Total.....	630,603	318,663	408,545	1,357,811

SAWMILLS AND LUMBER IN CUBA.

Many complaints have been made here relative to the lack of milling facilities for dressed lumber. A lumber dealer of this city, Mr. Hunter, states that there are only two small sawmills here, neither of much utility, and they charge exorbitant prices for dressing lumber—\$9 per 1,000 feet. He has leased for four years, with the privilege of buying at the expiration of that time, the best milling site in Cienfuegos, and he offers this site free of rent to any enterprising American who will establish a modern sawmill here. He will promise the American all of his own sawing, and no doubt he would receive the work of the many large plantations in this province and that of the new Cuban Central Railroad. Mr. Hunter says that there is a great local demand for doors, window frames, and moldings at very profitable prices, these articles being now imported from the United States under heavy rates of duty.

The fact that an American firm has established a good sawmill in Habana and is now buying logs in this port and shipping them to the mill, paying freight rates equal to a shipment to the United States, makes it apparent that the establishment of a mill in this city under the conditions mentioned would be very profitable. My own investigations along this line substantiate Mr. Hunter's conclusions.

In connection herewith, I would mention that the two principal export woods of Cuba—mahogany and cedar—are steadily enhancing in value, and the holders of the choicest timber lands on the north coast, as well as those holding lands adjacent to the new Central Railroad, are advancing their prices. Nevertheless, there are good mahogany lands on the south coast of Cuba that may yet be bought at a low figure.

MAX J. BAEHR,

CIENFUEGOS, *February 23, 1903.*

Consul.

CUBAN DIPLOMATIC AND CONSULAR SERVICE.

Under date of February 23, 1903, Mr. Sleeper, chargé d'affaires at Habana, transmits a copy of the law of the diplomatic and consular service of the Republic of Cuba, which provides:

The diplomatic service shall consist of the following officers:

- (1) Envoys extraordinary and ministers plenipotentiary; salary, \$5,000.
- (2) Ministers resident; salary, \$4,000.
- (3) First secretaries; salary, \$3,600.
- (4) Second secretaries; salary, \$2,000.
- (5) Attachés; this shall be considered an honorary office, without salary or emoluments of any kind.

All officers of the diplomatic service, except attachés, shall be entitled to traveling expenses to and from their posts, except in cases of transfer at the request of the interested parties. To the first two classes, from \$1,000 to \$3,000 are assigned for office supplies, rent, and subordinate employees, and from \$1,000 to \$5,000 for representation expenses. First secretaries, and second secretaries where there are only second secretaries, shall receive for representation expenses up to the maximum sum of \$1,000 and \$400, respectively. The amount between the minimum and maximum shall in all cases be recommended by the Executive, and together with salaries shall be paid in monthly installments at the end of each month.

The qualifications necessary for the first and second rank in the diplomatic service are: (1) To be a Cuban and of age; (2) to speak and write correctly French and Spanish and, at least, translate English.

In order to discharge the duties of the offices of first and second secretaries the qualifications are: (1) To be a Cuban and of age; (2) possession of a diploma of doctor or licentiate in civil law and canonical or administrative law, or civil or public; (3) to speak and write correctly French and Spanish and, at least, translate English or German. The qualifications must be fully accredited before the Secretary of State in the manner determined by the regulations.

Consular officers of the Republic of Cuba shall be of the following ranks, with salaries: (1) Consuls-general, \$3,000; (2) consuls of the first class, \$2,400; (3) consuls of the second class, \$2,000; (4) vice-consuls, \$1,800; (5) honorary consuls, who shall receive 50 per cent of the fees collected, but such sum shall never exceed the salary and office supplies of a consul of the second class.

Consular officers, except honorary consuls, shall receive traveling expenses to and from their posts, except in cases of transfer at their own request. To consuls-general are assigned from \$1,500 to \$3,000 for office supplies, rent, and subordinate employees; consuls of the first class, from \$1,200 to \$2,000; consuls of the second class, from \$1,000 to \$1,500; vice-consuls, when not attached to a legation or consulate-general, from \$1,000 to \$1,500. There may be a vice-consul in every consulate-general, and a clerk in every consulate and vice-consulate at a salary of \$1,000 to \$1,200. The Executive will recommend in each case the amount between the minimum and maximum which, together with salaries, shall be payable in monthly installments.

The qualifications necessary for consular officers are: (1) To be a Cuban and of age; (2) to speak and write correctly Spanish and the language necessary in the country where such employees are to discharge their duties. Honorary consuls are excepted from these qualifications; however, Cuban citizens must always be given preference in filling these offices, and in their absence foreigners having mercantile relations with the Republic.

The consul of highest rank in countries where Cuba has no diplomatic representative may serve as *chargé d'affaires*.

COMPETITION FOR THE PALMA INTERNATIONAL RIFLE MATCH.

Under date of March 18, 1903, the Department has received from the British embassy, Washington, copy of a circular invitation from the secretary of the National Rifle Association, embodying the conditions under which the forthcoming competition for the Palma international rifle trophy will be held at Bisley on July 11, 1903.

The general conditions for the match are:

1. *Teams*.—Each team shall consist of eight men. Members of the various teams participating must be native-born citizens and residents of the countries they respectively represent, except in the case of teams representing a provincial territory of a government, in which case a residence in the province will be sufficient, provided the member is a native-born subject of the parent country.
2. *Rifles*.—The national military arm of the country the team represents.
3. *Distances*.—Eight hundred, nine hundred, and one thousand yards.
4. *Size of target*.—Rectangular, 12 by 6 feet. Dimensions: Bull's eye, circular, 36 inches diameter; inner, circular, 54 inches diameter; magpie, square, 72 inches; outer, remainder of target.
5. *Number of shots*.—Fifteen at each distance by each competitor.
6. *Position*.—Any, without artificial rest.
7. *Entrance fee*.—Per team, £3 5s. (\$15.81).

The circular adds:

The council of the National Rifle Association hope that as many nationalities as possible will take part in the match, and they cordially invite the United States to send a team. Long-range accommodation at Bisley will be placed at the disposal of the competing teams before the match for practice, and all arrangements for their convenience and comfort will be forwarded. The secretary of the National Rifle Association (Bisley Camp, Brookwood, Surrey) will be glad to answer any inquiries and to give any further information in his power.

NOTES.

Proposed Railways in Siberia.—Commercial Agent R. T. Greener reports from Vladivostock, January 18, 1903:

The council of state has received for approval the following extraordinary estimates for railways: Six hundred thousand rubles (\$309,000) for a connecting line between the Transbaikal and the Manchurian line, 20,000,000 rubles (\$10,300,000) for the road around Lake Baikal, and 2,000,000 rubles (\$1,030,000) for the road from the Soochau coal mines to Nahodka Bay, and also for a line from the Ussuri Railroad to the same mines, to facilitate transportation to Vladivostock. While the other items are likely to be approved, there is a rumor that the last-named amount will not be granted. For transportation from Nahodka Bay to Vladivostock private steamers will be employed instead. It is reported that 200,000 rubles (\$103,000) have been assigned for the exploitation of these mines for the present year. In the spring experiments will be made with smokeless coal on board the ships of the squadron. According to the Siberian Reporter a private company has formed a syndicate of Russian and foreign capitalists to lay a railroad from the Main Asiatic to the Great Siberian line, arranged to traverse the fertile districts of Tomsk and serve as the shortest means of transportation into central and eastern Siberia, Mongolia, and Manchuria, and for Chinese goods, especially tea, to Transcaspia, and even to the north of Persia. The project has great importance. The construction of the Great Siberian Railroad will not develop the resources of the country without branch lines from the distant regions. Into Turkestan two natural ways lead—the rivers Ob and Irtish—but neither runs to the center of the country. Branch railways to Semipalatinsk and Barnaul would be of great value in opening up that region.

Canadian Railway to the Yukon.—Consul L. E. Dudley writes from Vancouver, March 17, 1903, that there is a movement on foot in that city to secure the construction of a railway from some point on the coast within the Province of British Columbia to the valley of the Yukon. An article which appeared in the Daily Province of last evening says:

Active arrangements are being made by a syndicate of prominent Vancouver business men looking to the building of a railroad from Kitimaat Inlet through the northern part of British Columbia and the Yukon to Dawson. The Coast-Yukon

is the name of the proposed line of railway, which is to start from the British Columbia coast, 400 miles north of Vancouver, and form an all-Canadian route to the Klondike. It is under this title that the Vancouver syndicate is applying for a charter and subsidy at the present session of Parliament. * * * Passing a narrow strip of the coast range, the proposed route goes through 150 miles of the Bulkley and other valleys of the best agricultural lands in the Province. The whole distance to Teslin Lake is about 400 miles, and the route is claimed to be much easier than that over which Mackenzie & Mann planned to go at the first of the Klondike rush. This country contains not only big mining districts, but large wheat-land areas. The promoters will ask for a subsidy to assist in financing the building of the line, or else that the Government take it over as a public utility—action in either case of great value to this city and to Canadian trade in general.

Medicinal and Textile Plants in Paraguay.—Consul J. N. Ruffin sends from Asuncion, January 24, 1903, the following description of certain plants whose medicinal and industrial properties are commanding attention:

Jaborandi.—The leaves are in demand for the cure of diseases requiring free perspiration. It can be obtained cheaply and in a reasonably large quantity.

Aybri-kaa.—This takes its name from the cacique who made its properties known, and is considered a sure curative for bronchial catarrh; also for stubborn colds. It is taken principally as a tea. It can be obtained in only one department of the Republic in a fair quantity.

Vetiver.—Some attention is being paid to the cultivation of vetiver; the root is valuable commercially.

Ipecacuanha.—This plant also grows here, but I do not think that its quality is equal to that of Brazil.

Vegetable silk.—This is produced by a tree about the size of a chestnut, bearing a boll $4\frac{1}{2}$ inches in diameter and 6 inches long. The silk is exceedingly light, and when the boll is picked to pieces it looks like down, except that it is glossy. Although I believe it can be woven into thread, its chief utility would be for stuffing cushions, quilts, etc. I am also told that it can be adapted for life-preserving appliances at sea. Its characteristic quality is its extreme lightness. The trees abound here.

The producers of these plants would be glad to furnish full details to persons desiring them.

Railway-Car Plant in Mexico.—Consul W. W. Canada writes from Veracruz, February 16, 1903:

The Federal Government has authorized Mr. Isaac Hutchison to

erect and operate a plant for the construction of freight and passenger cars, under the conditions named below:

Within six months full plans and descriptions of the buildings and machinery must be presented to the Government, and the entire plant shall be completed and in working order within three years. The sum of at least \$100,000 Mexican (about \$40,000 gold) shall be invested in the proposed enterprise during the ten years for which this privilege is granted. Four scholars, to be selected by the Government, shall be admitted to the shops to make themselves familiar with the working of the plant, and the works are to be open for visits from the pupils of the national schools at stated periods and under competent guidance. The sum of \$10,000 must be deposited with the national bank as a guaranty for fulfillment of the concession. The Government reserves the right to appoint inspectors. All the material for construction will be admitted free of duty. The capital invested is to be free of direct taxation and only subject to the stamp revenue tax.

Meat-Canning Factory in Veracruz.—The following has been received from Consul W. W. Canada, under date of February 16, 1903:

The government of Veracruz has authorized Mr. Alfred Bishop Mason to establish a canning and preserving factory within the limits of the State. The place selected for the erection of buildings for killing beef cattle, sheep, goats, and hogs, as also the refrigerating plant for the meats and fish, is the town of San Antonio Tenejapa, county of Orizaba. As this is the first establishment of the kind in the State, and also on account of the large capital invested, the concern will be free of all taxation; but in case the products sold are in fresh, salted, or refrigerated condition, the regular license tax on the killing of cattle is to be collected. The construction of the plant is to be completed within two years. The State government agrees not to give similar privileges to any other like enterprise during the term of ten years.

Export of Silver Coins from Nicaragua Prohibited.—Consul A. L. M. Gottschalk sends from San Juan del Norte, February 26, 1903, translation of a recent decree, which provides:

The President of the Republic, considering that there has been no possible means of counteracting the export of coined silver, whose exit from the country injures the public treasury, and, further, considering that lack of circulation of the above-mentioned silver currency is the chief cause of the depreciation of national paper currency, and, with the object of establishing a fixed relative value for both the currencies aforesaid, decrees:

ARTICLE I. From the date of publication of this decree, the exportation of coined silver shall be prohibited; in consequence, it shall be considered as contraband and come within the scope of the law for such offenses.

ART. II. The chiefs of customs-houses and police and treasury officials shall make careful examination of all cargo and personal baggage belonging to passengers about to leave the country, and the latter shall be obliged to pass their baggage through the office in charge of these matters.

ART. III. The present decree makes null and void any contrary ones heretofore issued.

Transit Duties on the Amazon Abolished.—Under date of February 22, 1903, Consul-General E. Seeger, of Rio de Janeiro, transmits copy and translation of the ministerial decree abolishing transit duties on Bolivian commerce by way of the Amazon. The decree reads:

I hereby announce to the chiefs of Department of Finance, for their information, that this ministry has, by means of telegrams of this date to the collecting agents of the Federal Treasury in the States of Para and Amazonas, declared that, although there is no treaty or convention in force relative to commerce and navigation between Brazil and Bolivia, the tolerance of free transit by the Amazon of merchandise destined for Bolivia and of shipments from the river ports of that Republic destined for foreign countries, which formerly prevailed, is reestablished; the prohibition of the importation of war material to Bolivia through Brazilian rivers is, however, continued until further orders.

Financial Measures Proposed in Haiti.—Under date of March 16, 1903, Minister Powell, of Port au Prince, informs the Department that the plan of the Minister of Finance, proposing to double the duties on all imports coming from other countries than France, is being considered by the House of Deputies of Haiti. It is also proposed to increase the present paper currency by \$3,500,000, this to be accepted by the Government in payment of the custom revenues, which are now to a certain extent payable in gold, and a portion to be set aside to pay the interest on bonds held by foreign creditors. Another feature of the plan is the placing of a tax on the Government bonds. The passage of this law, the minister notes, will affect the import of salted provisions, flour, denim, cottons, and the coarser lines of textiles and the various lines of hardware, all of which come from the United States. He adds that this year's coffee crop is above the average and more cotton will be exported than for several seasons. This product is said to be of a very good quality and is being sent to France and England, where it brings a fair price.

Sanitary Congress at Bradford.—The Department has received from Ambassador Choate, of London, under date of March 4, 1903, notice that the council of the London Sanitary Institute has arranged

to hold, in conjunction with the local authorities in Bradford, a congress from July 7 to 11, 1903, for the purpose of discussion of various matters connected with public health. Official delegates have been appointed by various municipal authorities throughout the United Kingdom to attend the meeting, and the council will be pleased to welcome any representatives of the United States Government. The preliminary programme, with the list of subjects to be discussed, is inclosed. These will include matters of international importance in connection with hygiene. The sections of the congress are: (1) Sanitary science and preventive medicine; (2) engineering and architecture; (3) chemistry, physics, and biology. An exhibition of apparatus and appliances relating to health and of domestic use will be held in connection with the congress. Tickets for the congress are 1 guinea (\$5.11) each, to be obtained at the office of the local secretary, Town Hall, Bradford, or of the Institute, 72 Margaret street, London W.

Congress for Applied Chemistry at Berlin.—The Department has received a note from the German embassy, Washington, dated March 4, 1903, stating that the Fifth International Congress for Applied Chemistry will be held in Berlin from June 2 to 8, 1903. The United States Government is invited to send official delegates. Printed circulars for distribution to interested institutions are inclosed. Announcements of participation—also demands for information—should be addressed to the office of the Fifth International Congress for Applied Chemistry, 21 Marchstrasse, Charlottenburg. The assessment for membership is 20 marks (\$4.76); ladies accompanying members, 15 marks (\$3.57). The purpose of this congress is to promote the scientific and economical interests of chemical work by introducing uniform standard methods and regulations throughout the world. The first congress of this character was held at Brussels in 1894 and the fourth at Paris in 1900.

Combination of Swedish Glass Factories.—Consul R. S. S. Bergh sends the following from Gothenburg.

Swedish manufacturers are following the example of other countries and combining to prevent excessive competition and to work more effectively for export. Agreements have been made between joinery factories, lumber companies, match factories, etc., and the latest is the combination of several glass works, with head office in Stockholm. It involves eight glass works producing crystal glass, or table glassware, one of which is located in Norway. The stock

already paid for amounts to 1,625,000 kronor (\$435,500). The newspapers also report that eight of the ten Swedish works producing window glass have been combined into one concern. The operation of the glass works at Nol, near Gothenburg, has been stopped, and the trust will pay the owners of Nol glass works an annual compensation of 35,000 kronor (\$9,380) for ten years, on condition that no window glass is manufactured there. This arrangement has been made in order to reduce the yearly output of window glass to 140,000 cases; formerly, the production amounted to upward of 200,000 cases per annum.

American College in Strassburg.—Consul J. I. Brittain writes from Strassburg, February 18, 1903:

The average American is beginning to learn that if we are to continue our advancement along commercial lines, we must give our boys a better knowledge of the modern languages. An American college has been established in Strassburg (the educational and commercial center of this consular district), the object of which, as set forth in a circular, is "to fit American boys for American universities in the actual European environments of spoken German and French." The number of pupils admitted to the school is limited to twenty. "Classes" and "forms" do not exist, nor under any circumstances do more than four boys hear the same recitation at the same time. The modern languages are taught by native teachers, resident at the school. Science and the English subjects are in charge of experienced American instructors. The school occupies a building of forty rooms, situated in the best part of the city, and has modern sanitary arrangements. A large playground and a boat-house, well supplied with training and racing boats, are near the building, thus affording ample facilities for athletic exercise. The principal of the school is David K. Goss, formerly superintendent of schools in Indianapolis.

Automobile Exposition at Brussels.—Consul G. W. Roosevelt reports from Brussels, February 17, 1903, that an international exposition of automobiles, cycles, and motor cycles was held February 7 to 16 in the Cinquantenaire Park, at Brussels. The extensive hall was illuminated by electricity and by Washington hanging lamps—a new system of illumination by ordinary petroleum, emitting intense light. There were 150 exhibits, ranging from the powerful truck of 20 or 40 horsepower to the graceful voiturette of 6 or 8 horsepower. One solidly constructed truck, which was immediately bought for the Kongo Free State, had a carrying capacity of 6 tons and hauling capacity of 6 additional tons; average speed per hour, 12 kilometers

(7.45 miles). The consumption, either alcohol or petroleum, was 1 liter (1.05 quarts) for 3 kilometers (1.86 miles), and its capacity permitted a run of over 90 miles without refilling. The only really new device transformed the front or gearing wheels into motor wheels. A concealed mechanism operated the motor. The steering gear could be adjusted to any desired height, and the mechanism operating the forward motor could be attached to any carriage.

Poultry Exhibition at Rome.—Under date of February 11, 1903, Consul-General Hector de Castro, of Rome, transmits copies of the programme* and regulations of the poultry exhibition to be held in Rome from April 16 to 26, 1903, in connection with the International Congress of Agriculturists.† An invitation is extended to societies and parties interested in the improvement of poultry to participate in this exhibition. The entrance fee is 1.50 francs (29 cents) for every subject in all the categories except pigeons, which are taxed 1.50 francs (29 cents) per pair. Communications should be addressed to the Agricultural Committee of Rome, Place S. Stefano del Cacco, N. 26.

Congress of Thalassotherapy in Biarritz.—Under date of March 31, 1903, the Department has received from the French embassy, Washington, notice of the Third International Congress of Thalassotherapy, to be held in Biarritz from April 19 to 21, 1903. The committee expresses the hope that institutions interested may send delegates, in spite of the shortness of the time. The subscription fee is 10 francs (\$1.93). Programmes are inclosed.‡ The French railway companies have accorded a reduction of 50 per cent on the usual fare. Reports will be made: (1) Effect on the intimate phenomena of nutrition of a stay at the seashore; (2) effect of the sea cure on tuberculosis; (3) influence of sea treatment upon the cardiovascular apparatus; (4) composition of ocean water compared with the water of the Mediterranean. Communications should be addressed to M. le Docteur Lobit, general secretary of the congress at Biarritz.

International Exposition at Liege.—The Department has received from the Belgian legation, Washington, under date of March 16, 1903, notice that a universal exposition of sciences, arts, and industries will open at Liege in the month of April, 1905, and will last

* Filed in the Bureau of Foreign Commerce, where it may be examined by parties interested.

† See ADVANCE SHEETS No. 1573 (February 17, 1903).

‡ Filed in the Bureau of Foreign Commerce.

for at least six months. An invitation is extended to the United States to participate. Invitations to exhibitors are inclosed, which explain the system of division by national compartments, or the grouping together of the works and produce of each country, combined with a mode of general classification. The price for space will include the expenses of general decoration and handling charges. The Belgian Government will grant free return transport on the State railways to foreign exhibits.

Swedish Brake for Electric Motors.—Consul R. S. S. Bergh reports from Gothenburg, March 18, 1903:

Mr. Arthur Hultqvist, assistant engineer in the workshops of the electrical street railways of this city, has recently constructed a brake for electric motors which consists of a small automatic reversing switch (omkopplare), which is fastened near the motor. On every machine is a pendant handle bearing the words "emergency brake" in red letters. If a workman should happen to be caught in the machinery or any other accident should occur, the machinery can be quickly stopped by pulling the handle, which sets the brake in action. It is claimed that the machine can be stopped in this way within one-half or one-fourth rotation. It is expected that this brake will be found very useful in every establishment where electric motors are in use.

Opening for Chemicals in Budapest.—Consul F. D. Chester writes from Budapest, March 5, 1903:

My attention has been called by a Rotterdam firm* to the fact that Germany exports a quantity of magnesium carbonate and oxide to Hungary, and that there are American factories of these articles. The firms of Ferdinand Nernda and Frederick Kochmeister's Successor, in this city, wholesale chemical dealers, and many Budapest druggists (whose names can be had by applying to this consulate), could probably be induced to import the American article direct, though not through Holland or Germany. Hungarian statistics of the import of these articles are indefinite, but there is no doubt that this is a good market for chemical materials and products.

Extension of the Railway-Zone System in Hungary.—Consul F. D. Chester reports from Budapest that there has been an extension of the railway-zone system in force on the Hungarian State

* New York agents, A. Van der Laan & Co., No. 18 Broadway.

railways, within which zones stop-over privileges are allowed. The supervision of the privilege is more strict than formerly, passengers being required to obtain a certificate from the conductor of the first train. American tourists, he adds, will have to be careful not to purchase in West European ticket offices old Hungarian coupons, lacking the stop-over validity of the new tickets.

Production of Saltpeter from Air in Germany.—Consul-General Richard Guenther, writing from Frankfort, March 3, 1903, says that Professor Muthmann, of the Polytechnical Academy at Munich, in a recent lecture before the Chemists' Association of his city, stated he had demonstrated that saltpeter can be produced from air by electricity at less than one-fourth its present cost. It has for some time been known to scientists, the professor continued, that nitric acid can be formed by passing high electric currents through moist air between two platinum poles, and suitable apparatus is all that is now needed for the manufacture of nitrates on a large scale.

Exports from the Transvaal.—Consular Agent W. D. Gordon transmits from Johannesburg, February 7, 1903, a list of the chief exports in the year 1902, as follows:

Quantity and value of principal exports from the Transvaal for the twelve months ended December 31, 1902.

Article.	Quantity.	Value.	
Coal.....tons...	325,450	£104,412	\$508,121
Kaffir corn.....pounds...	24,850	156	759
Mealies.....do.....	501,800	2,824	13,743
Gold.....ounces...	1,704,417	7,239,888	35,232,915
Hides.....number...	5,880	2,021	9,835
Machinery.....		7,702	37,482
Mineral waters.....dozen bottles...	2,245	240	1,168
Mohair.....		895	4,356
Sheepskins.....number...	18,140	822	4,000
Tobacco, manufactured.....pounds...	102,072	13,518	65,758
Wool.....do.....	1,640,331	36,659	173,535

Cotton from German East Africa.—Consul-General O. J. D. Hughes writes from Coburg, February 27, 1903:

Several hundredweights of cotton grown in the Kilwa district of German East Africa have just been tested at the Bremen Cotton Exchange and by the Union of Saxon Cotton Spinners at Chemnitz, and these trials are reported to have resulted in showing that this cotton is nearly as good in staple, color, etc., as the highly valued

Egyptian product, from seeds of which it was grown. Kilwa cotton is valued at from 55 to 65 pfennigs per one-half kilogram (*i. e.*, from 12 to 14 cents per pound), and the Manchester Chamber of Commerce says that it is better suited to replace Egyptian cotton than is any other quality known. To promote the culture of cotton, the colonial economical committee has promised premiums to those who own properly cared-for cotton fields, and has promised to buy, at a fixed price, a quantity of cotton; also to furnish seeds and a number of cotton gins and baling presses free of charge.

Tariff Change in Persia.—Under date of February 16, 1903, Minister J. G. A. Leishman, of Constantinople, notifies the Department that the proposed changes in the tariff agreement between Russia and Persia went into effect February 15, 1903. In a report to appear in *Commercial Relations*, 1902 (Vol. I), this change is explained as follows:

The Persian tariff at present is 5 per cent ad valorem on both exports and imports, but this is to be changed to a specific tariff. In the treaty between Persia and Russia in 1828, this 5 per cent arrangement was made, and all the other foreign powers (including Turkey, by a recent agreement) are on the "most-favored-nation" basis. Consequently, when Russia negotiates the new treaty, all other foreign nations will be affected by it.

Foreign Enterprises in Siberia.—Commercial Agent R. T. Greener sends the following from Vladivostock, December 29, 1902:

It should be noted by persons in the United States who are called on to invest in Siberian ventures that few are successful. It is not so difficult to get a St. Petersburg concession, if one has capital enough to work the concession. But the outcome, whether for mining, fishing, hunting, or trading, has in few cases justified the outlay. It should be clearly understood that the Russian Government does not offer inducements for these ventures, and that expensive formalities must be complied with.

Customs Service at Dalny.—Under date of February 15, 1903, Commercial Agent R. T. Greener reports from Vladivostock:

The Russian newspaper *Novy Kry*, of Port Arthur, announces that on January 1 (14), 1903, the custom-house at Dalny was opened for levying duty on merchandise carried by the Chinese Eastern Railroad into and from Manchuria. This action is due to repeated complaints on the part of the Chinese Government that contraband goods were being carried by the railroad into Manchuria without payment of duty. As the custom-house will be located at Dalny,

all cargoes intended for Manchuria and shipped from Port Arthur, Inchensa, and Nangatin must be first carried to Dalny in order to be examined. The cities of Port Arthur and Dalny remain free ports, and only merchandise from or to Manchuria is liable to duty.

Weaving Machinery for Japan.—Under date of February 10, 1903, Consul S. S. Lyon transmits from Kobé clipping from a local newspaper, as follows:

Mr. Yamaguchi, an expert in the Department of Agriculture and Commerce, who in August last was sent to Europe and America to purchase weaving machines to be hired to weavers in this country, has returned home. Mr. Yamaguchi has spent some 35,000 yen (\$17,430) in America and the same amount at Lyons, France. At Zurich, Switzerland, he bought machinery to the value of 15,000 yen (\$7,470), and in Germany he spent 25,000 yen (\$12,450), the purchases including dyeing and velvet-weaving machines. The American machines are to be loaned to the Ashikaga model weaving factory and those from France to the Kiryu model weaving factory. The French habutai-weaving machines will be lent to the Fukui weaving school and the dyeing and other machines to the Yonezawa model weaving factory, while the velvet-weaving machines will go to the Kyoto model weaving factory. The machines are expected to arrive next month.

Australian Wool Shipments.—Consul-General J. P. Bray reports from Melbourne, February 28, 1903, that the total shipments of wool from Australia to the United States during the season 1902-3 amounted to 34,004 bales, or 1,789 bales less than in the previous season, as will be seen by the following table:

Port of shipment.	1901-2.	1902-3.
	<i>Bales.</i>	<i>Bales.</i>
Melbourne	28,258	26,569
Sydney	7,535	6,760
Adelaide	—	675
Total	35,793	34,004

Postage Rates to Canada.—Writing under date of February 24, 1903, Consul L. Edwin Dudley, of Vancouver, says that he frequently receives publications, and sometimes letters, on which the senders have paid excessive postage, and that many persons seem to be ignorant of the fact that on matter mailed to Canada the same postage is required as on matter mailed to points in the United States. "I am," adds Mr. Dudley, "a regular subscriber for a daily newspaper published in an eastern city. Notwithstanding the fact that I have several times called the publisher's attention to the matter, I

often receive the daily under a 2-cent stamp and the Sunday edition under a 5-cent stamp. The postage thus paid amounts to the price of the paper as sold at home by the newsboys and to considerably more than what I pay for an annual subscription. This paper should come to me at pound rates, the same as to points in the United States."

Canadian Duty Wanted on Binder Twine.—Consul E. N. Gunsaulus, of Toronto, under date of February 26, 1903, quotes from the Canadian Manufacturer the following:

Representatives of the eleven binder-twine and cordage factories in Canada waited upon the ministers of customs and finance last week and asked for the imposition of a duty upon binder twine. Now that the control of the Philippines has passed into the hands of the United States, the American manufacturers are able to obtain their manila fiber at three-eighths of a cent per pound less than their Canadian competitors; consequently, the former are able to undersell the latter in the Canadian market. The Canadian manufacturers are therefore looking to the restoration of the duty to afford them relief from ruinous competition.

During the year 1902, adds the consul, Canada imported binder twine to the value of \$1,752,859, and of this the United States supplied \$1,683,772.

Steel Industry in Ontario.—Consul E. N. Gunsaulus writes from Toronto, February 26, 1903:

According to reports of the bureau of mines, the steel industry in Ontario shows a large gain over last year, the output having been 68,802 tons, valued at \$1,610,031, compared with 14,471 tons, valued at \$347,280, in 1901. The difference was largely due to the entry of the Sault Ste. Marie works into the field. The production of pig iron was 112,687 tons, valued at \$1,683,051, compared with 116,370 tons, worth \$1,701,703, in 1901. The wages paid in the pig-iron and steel industry amounted to \$510,107, compared with \$274,554 in the year previous. The production of iron ore amounted to 361,472 tons, worth \$521,409, compared with 273,530 tons, valued at \$174,428, in the previous year. In this work, the wages paid amounted to \$228,534, compared with \$231,039.

Agriculture in Northwest Canada.—Commercial Agent Gustave Beutelspacher writes from Moncton, March 13, 1903:

The Government has issued a census bulletin, which gives statistics as to agriculture in Alberta, Assiniboia, and Saskatchewan, which united compose the Northwest Territories. The total area of these territories is 190,963,117 acres, and only 6,569,064 acres are occupied

as farms. Of this area, 75.99 per cent is unimproved. Field crops, exclusive of hay, occupy 53 per cent of the improved land, but only a fair beginning has been made with fruit trees and vegetables. The area of land in wheat, oats, barley, rye, corn, pease, potatoes, and other field roots in 1891 was 194,773 acres. The increase at the end of the last decade was 694,073 acres, or 333 per cent. The production of homemade butter is nearly twice as much as ten years ago, and in the interval ten factories have been put into operation.

New Bridges in British Columbia.—Consul A. E. Smith reports from Victoria, March 19, 1903, that two important bridges are now in process of erection—one over the Victoria Arm, on the trolley-car route from Victoria to Esquimalt. It will be 600 feet long and 28 feet wide, with a single trolley track in the center. The structure will be a pin-connected steel truss bridge, and will cost \$106,000.

The provincial government is erecting a large two-decker steel bridge over the Fraser River at New Westminster, the cost of which will be \$850,000. It will be half a mile in length and 19 feet wide. It will have a single-track road for the railway, 18 feet above high water, and a road for pedestrians and wagons 21 feet above the railway. The bridge will rest on 11 piers and have a draw in the center to permit the passage of steamboats. It is expected that the Great Northern will use this bridge to cross the Fraser River to get to Vancouver.

Disposal of Sewage in British Columbia.—Consul L. Edwin Dudley, of Vancouver, under date of February 26, 1903, says that the three septic tanks for the disposal of sewage which have been in operation in that city for several years have proved so satisfactory that the local authorities have decided to erect three additional tanks next summer. The plant will then be able to handle nearly all the sewage of the city. Not a single complaint, adds the consul, has been received regarding this system. Its first cost is comparatively small, its maintenance is inexpensive, and it does its work perfectly, promoting public health and benefiting the city financially.

Duty on Prepared Foods in Costa Rica.—Consul J. C. Caldwell writes from San José, February 24, 1903, that, by a decree of February 18, the duty on Fallières' phosphate has been reduced from

2.50 colons (\$1.16 gold) per kilogram to 0.10 colon (4.5 cents) per kilogram (2.2046 pounds), making it at the same rate as that on Horlick's, Mellin's, and Nestle's foods.

Import Duties of Colombia.—Under date of February 17, 1903, Minister Hart, of Bogotá, reports that the Colombian Government has issued a decree* remitting all import duties except those abolished on the basis of present exchange. New duties are: On cotton goods, from 60 to 100 per cent ad valorem; hardware, from 50 to 100 per cent; wines and spirits, from 100 to 250 per cent.

Marine Railway at Nassau.—Consul Thomas J. McLain, of Nassau, informs the Department, March 2, 1903, that a recently organized company has obtained control of the old marine railway at that port which was partly destroyed by fire in 1888, and has put it in good condition, adding many modern improvements. It is now ready to repair vessels up to 1,200 tons burden.

Rouen-American Steamship Service: Correction.—Consul Thornwell Haynes writes from Rouen, in correction of errors in a report appearing in CONSULAR REPORTS No. 270 (March, 1903). In the eighteenth line on page 407, instead of "Rouen is the seaport of France," it should read "Rouen is the seaport of Paris." In the twenty-eighth line from the top on page 407 occurs the sentence, "The Rouennais textiles are famous all over." The sentence should have ended with the word "Europe."

Demand for Dried Fruits in France.—Consul B. H. Ridgely writes from Nantes, March 6, 1903, that a responsible commission merchant of that city desires to correspond with American exporters of dried fruits, particularly dried apples, and of sulphate of copper. Communications should be addressed to M. Maximo Boquien, care United States consulate, Nantes.

Iron for Warehouses in Barcelona.—Consul-General J. G. Lay reports from Barcelona, March 5, 1903, that the Barcelona Harbor Board of Works has asked for tenders for the supply of iron material for enlarging the warehouses on some of the quays, and also for six

* See ADVANCE SHEETS No. 1560 (February 2, 1903); CONSULAR REPORTS No. 270 (March, 1903).

buoys to be placed in the harbor; the tenders to be handed in before March 28. In view of the short space of time allowed, Mr. Lay communicated with the representatives in London, England, of some of our leading engineering firms, in the hope that United States enterprise would be able to secure the contract.

Quarzitol: New Brick in Germany.—Consul H. W. Diederich writes from Bremen:

Supplementing my report on quarzitol, a new brick in Germany, published in ADVANCE SHEETS No. 1476 (October 23, 1902), I desire to say that I have learned that the inventor has recently returned from the United States. He went there to exploit his patents, but found that it was impossible to manufacture the new brick in that country in competition with clay and other bricks, for the reason that the chemical ingredient needed as a binding material is too expensive.

British Coal Product in 1902.—Under date of February 28, 1903, Consul F. W. Mahin writes from Nottingham:

Official reports from the 12 mine-inspection districts of the United Kingdom show a gross increase of 8,140,900 tons of coal mined in 1902 as compared with 1901. The largest district increase was 1,338,298 tons, in the Midland, covering this locality. The next largest was in the York and Lincoln district—990,259 tons. The smallest increase was in the Liverpool and North Wales district—306,498 tons. The total output of coal in the Kingdom was 219,037,240 tons in 1901 and 227,178,140 tons in 1902. The total number of persons employed at mines in 1902 was 825,401.

Fire-Prevention Congress at London.—The Department has received from Mr. Henry White, chargé d'affaires at London, under date of February 13, 1903, notice that the International Fire Prevention Congress will be held in London from July 7 to 10, 1903, in connection with the International Fire Exhibition.* An invitation is extended to the principal public departments of the United States interested in the subject to be represented at this congress.

Duty on Needles in Russia.—Commercial Agent R. T. Greener reports from Vladivostock, January 18, 1903, that a protective duty will be levied on needles imported into Russia. Sewing needles,

* See ADVANCE SHEETS Nos. 1439 and 1528 (September 9 and December 24, 1902).

instead of 54 kopecks (27.8 cents), will pay 1.40 rubles (72.1 cents) per pound; sewing-machine needles, 2 rubles (\$1.03); and embroidery and knitting needles, 60 kopecks (30.9 cents) per pound.

Free Treatment of the Eyes in Russia.—Commercial Agent R. T. Greener writes from Vladivostock, February 15, 1903:

A Russian charitable association is sending out traveling parties of oculists to render free assistance to persons of small means. During the three months of one party's stay at Habarofsk and Vladivostock, 504 persons received free treatment and 164 operations on eyes were performed.

German Request for Bones for Knife Handles.—Consul J. J. Langer writes from Solingen, March 10, 1903, that he has an inquiry from the firm of Kotthaus & Co., Solingen, for the names of concerns in the United States which deal in bones suitable for making handles for knives, etc.

Agricultural Experts for Egypt.—Consul-General J. G. Long reports from Cairo, February 26, 1903, that the Khedivial Agricultural Society of Egypt has informed him that the society will probably require two employees from September next, one as a cotton expert and one as chemist. It has written the United States Department of Agriculture with a view of being placed in communication with suitable candidates.

Opening for American Machinery in South Africa.—Consular Agent W. D. Gordon, of Johannesburg, informs the Department, February 7, 1903, that he has received inquiries for machinery for cleaning and preparing for the market corn, tapioca, beans, and peanuts, and requests manufacturers in the United States to send him catalogues and data.

Review of the World's Commerce and Commercial Relations.—Owing to the omission of Congress to provide the usual number of copies of the Review of the World's Commerce and of Commercial Relations of the United States, 1902, the Department of State has no edition for general distribution, and is therefore unable to comply with requests for these publications.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Seeger, Rio de Janeiro.....	Feb. 3, 1903	Gold in Brazil.....	Geological Survey.
Do.....	Feb. 17, 1903	.....do.....	Do.
W. F. Grinnell, Manchester..	Feb. 26, 1903	Health statistics.....	Marine-Hospital Service.
E. Schneegans, Saigon.....	Jan. 15, 1903	Rice-market conditions....	Department of Agriculture.
Do.....	Jan. 30, 1903	.....do.....	Do.
V. E. Nelson, Bergen.....	Feb. 21, 1903	Marriage statistics.....	Census Bureau.
W. A. McKellip, Magdeburg..	Mar. 3, 1903	Sugar-beet seed.....	Department of Agriculture.
L. H. Aymé, Guadeloupe.....	Feb. 2, 1903	Volcanic conditions.....	Geological Survey.
H. W. Harris, Mannheim.....	Mar. 4, 1903	Lying-in hospital.....	Marine-Hospital Service.
R. P. Skinner, Marselles.....	Mar. 19, 1903	Education.....	Bureau of Education.
L. E. Dudley, Vancouver.....	.....do.....	Labor strike.....	Department of Labor.
Do.....	Feb. 20, 1903	Canadian assay office.....	Treasury Department.
O. Malmros, Colon.....	Mar. 18, 1903	Reduction of import duty..	Bureau of the American Republics.
J. C. Covert, Lyons.....	Feb. 11, 1903	Silk culture.....	Department of Agriculture.
Do.....	Mar. 7, 1903	.....do.....	Do.
F. D. Chester, Budapest.....	Mar. 20, 1903	Hungarian emigration law.	Bureau of Immigration.
Do.....	Mar. 12, 1903	Emigration.....	Do.
A. E. Smith, Victoria.....	Mar. 23, 1903	Cleaning of sealers.....	Fish Commission.
G. W. Roosevelt, Brussels....	.....do.....	Deep-sea fishing.....	Do.

FOREIGN REPORTS AND PUBLICATIONS.

Economic Situation of Finland.—According to the *Moniteur Officiel du Commerce*, Paris, March 26, 1903, the development of the industries of Finland suffered a check in 1901, producing an economic depression from which the country has not yet recovered. No new enterprises worthy of mention have since been created; on the contrary, some industries already established have been obliged to stop work. The failure of the crops in 1902 has added to the gravity of the situation. From figures furnished by the customs department, the following statement regarding the commerce of Finland has been taken:

Year.	Imports.	Exports.	Total.
1897.....	\$39,082,500	\$32,559,100	\$71,641,600
1898.....	45,741,000	34,740,000	80,481,000
1899.....	48,443,000	35,685,700	84,128,700
1900.....	52,245,100	38,156,100	90,401,200
1901.....	41,610,800	36,052,400	77,663,200

The distribution of the trade of Finland in 1901 according to countries was:

Country.	Imports.	Exports.
Russia	\$16,725,959	\$10,672,900
Germany.....	12,934,474	3,073,332
Great Britain.....	4,942,151	10,115,323
Sweden	2,172,687	(*)
Denmark.....	1,844,887	2,550,688
Belgium.....	1,279,976	(†)
France.....	630,531	3,216,152
Spain	206,448	1,876,539
Netherlands.....	133,556	.....
Norway	155,365	.....

* Included with Norway.

† Included with the Netherlands.

The exports to Sweden and Norway were figured at \$1,221,690, and to Belgium and the Netherlands at \$3,012,923.

One of the most powerful economic factors of this country (which supplies in part the lack of capital) is the spirit of association; small as well as large enterprises belong generally to the "Aktiebolag," or joint-stock companies. Insurances of all kinds, and particularly life insurance, have great vogue.

The new railway line from Kuopio to Idensalmi was finished and opened to traffic in 1901. The line will be continued to Kajana.

The line from Uleaborg to Tornea will also soon be completed and will almost reach the Swedish frontier. The project of a canal from Lake Ladoga to the Gulf of Finland has good chances of being realized and this new means of communication will aid the exploitation of the immense forests which surround the lake and be a new source of revenue to the State.

Russian Trade with China.—The Board of Trade Journal, London, March 26, 1903, quotes from the Journal de St. Petersburg as follows:

In the three years 1898–1900, Russia's exports to China amounted to 20,485,000 rubles (\$10,549,775) and her imports from China to 129,753,000 rubles (\$66,882,795). The following table gives a list of the principal goods exported from Russia to China in 1900:

Description.	Value.	
	Rubles.	
Cotton goods.....	3,819,000	\$1,966,785
Mineral oil (for lighting).....	1,129,000	581,435
Russian leather.....	254,000	130,810
Animals.....	71,000	36,565
Woolen goods.....	80,000	41,200
Iron and steel.....	115,000	59,225
Hides.....	77,000	39,655
Horns and hoofs.....	70,000	36,050
Fox, wolf, and beaver furs.....	56,000	28,840
Sugar, refined.....	87,000	44,805
Cereals.....	66,000	33,990
Iron manufactures.....	73,000	37,595
Linen and hempen goods.....	27,000	13,905
Dyes and colors.....	70,000	36,050
Other merchandise.....	708,000	364,620
Total.....	6,702,000	3,451,530

It will thus be seen that more than one-half of Russia's exports to China consists of cotton piece goods. It is stated that 70 per cent of Russia's trade with China is carried on by the transcontinental route, and that there is a good opening in China for mineral oils for illuminating purposes, lamps, glass and crockery ware, iron and iron manufactures, sugar, hardware, and perfumery.

Commerce of French Colonies.—The following extracts are taken from an article in a recent number of the Bulletin de Géographie, of Paris:

The colonial domain of France is estimated at 3,861,000 square acres and may be divided into two principal groups—the Indo-China, composed of Anam, Cochin-China, Tonkin, and Cambodia, and the West African colonies, Senegal, the Ivory Coast, French Guinea, and Dahomey. Statistics show that the commerce of Indo-China in the last four years has passed from 205,000,000 francs (\$39,565,000)

to 342,000,000 francs (\$66,006,000), an increase of 65 per cent. Remarkable as this is, the four colonies composing French West Africa show a still greater increase in the same period, having risen from 85,000,000 francs to 152,000,000 francs (\$16,405,000 to \$29,336,000), an increase of 75 per cent. The trade of Dahomey alone passed from 15,000,000 francs to 28,000,000 francs (\$2,895,000 to \$5,404,000). Comparing the first quarter of 1902 with the corresponding period of 1901, an increase in the trade of Dahomey of 1,600,000 francs (\$308,800) is noted. This trade may be said to be almost exclusively made up of the products of the palm-oil tree, of which resource scarcely one-tenth is exploited. The lower part of Dahomey is covered with groves of palm trees and fields of manioc, maize, millet, peas, beans, and other vegetables, all admirably cultivated. There are, however, two productions not yet factors in its commerce which are destined to have a great future in this colony as soon as means of communication are established—tobacco and cotton. The cotton plant is indigenous and everywhere cultivated. This is most important to France, which imports annually from 220,000,000 to 240,000,000 francs (\$42,460,000 to \$46,320,000) of cotton. The English in their colony of Lagos are considering this culture, while the German colony of Togo has already established great cotton plantations, bringing men from the United States to instruct the blacks in the best methods of cultivation. The railway of Dahomey had, in October, 1902, nearly 62 miles completed and in actual operation.

Machinery Market in South Africa.—The following is summarized from the *Moniteur Officiel du Commerce*, Paris, February 12, 1903:

The import of machinery into South Africa, already very important, is expected to greatly increase in the near future. Most of the mining machinery will have to be renewed; the same is true of agricultural machinery. The preliminary conditions for sharing this trade in Cape Colony, Natal, and the Transvaal are: The appointment of earnest agents with technical knowledge of machinery; advertisements in the daily papers; sending catalogues and detailed lists of market prices; the quick and conscientious execution of orders; practical methods of packing, which shall not increase the expense of transport and shall secure the polished parts of machinery and valves from damage; finally, goods must be delivered as cheaply as possible. For this reason, both German and American manufacturers have had very light machines made for this trade. English machines are said to be too heavy; on the other hand, the German and American are claimed to be too light and not durable. American locomotives appear to have satisfied all requirements; still the English, while considerably dearer, are pronounced better. American rails also come cheaper than the English. The administration of the Cape Colony railways intends to replace the light rails of its network by heavier ones (85 pounds avoirdupois). In Natal, the construction of a number of railways is projected for next year; the same is true of the Transvaal, where plans for eleven new lines have been prepared. The Orange River Colony and Rhodesia have also vast schemes for railway building. Thus the demand for railway materials will be considerable.

South Africa is also destined to become a remunerative market for electrical machines and supplies in the near future. The establishment of central stations for the electric lighting and the tramway service of towns will increase the demand for the necessary machinery and materials. The competition is already great, and only first-class machines can be placed. Prices of English motors are generally higher than of American or German machines. Americans have obtained a remarkable success in this trade. Pumps of every kind and of every possible system are

used in South Africa; cheapness and prompt delivery are the essential conditions of trade. Hand pumps are usually of American or German make. Drills and crushing machines used in mines find the most important market. The crushing machines are mostly of English make. Germany is striving for a share in this trade with a new kind of crushing machine. America has heretofore furnished elevators, but Switzerland has recently appeared upon the market with first-class articles. In compressors, articles of German and American origin compete seriously with the English make. Steam machines must be as simply but as solidly constructed as possible. There is a great demand for steam boilers. In the mines, boilers with pipes for water must serve for nearly all uses. The water of the Rand district contains many acids. Apparatus for purifying water is not popular, being usually too complicated. A simple apparatus of this character would have great success.

As regards agricultural machinery, the American plow, reaper, and harrow have gained the market; they are cheaper than the English machines and more attractive in appearance. Decorticating machines are, without exception, of American make. Both the Transvaal and the Orange River Colony should be excellent markets for dairy apparatus. In Natal, there are favorable openings for placing modern machinery of great power for the sugar industry, which is rapidly developing in this colony. These machines must be for working sugar cane. The present installations, of English origin, are for the most part on the old system and are inadequate to increase the yield. There is a demand for simple and cheap laundry machinery everywhere in South Africa; there is also an opening for refrigerating machinery, provided that the price is not too high. Windmills or turpines are supplied in great numbers by America. They are of galvanized steel, and are used in the most important agricultural operations for pumping water into cisterns or reservoirs.

The demand for iron used in building houses and bridges has been supplied by England, but American and Belgian manufacturers are competing for this trade. They deliver more rapidly and also more cheaply. The American system of high buildings with steel frames is also being adopted. In Cape Town and in Johannesburg, there are numerous buildings of this kind being constructed, some eleven stories high. The steel material used in these constructions is ordered from America.

Export of Gum Arabic from Egypt.—The *Moniteur Officiel du Commerce*, Paris, March 19, 1903, says:

Gum arabic, formerly one of the chief articles of export from the port of Alexandria, has, since the reopening of the Sudan, regained its old importance, as the following figures show:

Year.	Quantity.	Value.
	<i>Pounds.</i>	
1898	257,149	\$29,540
1899	782,676	88,677
1900	1,457,200	243,194
1901	6,911,955	540,459

That this increase continues is shown during the first five months of 1902, when the total amount of gum exported was 5,967,227 pounds, valued at \$318,030, while during the same period in 1901 the amount exported was 1,875,728 pounds, valued at \$152,667.

Japanese Trade with the Philippines.—The Anglo-Japanese Gazette, London, March, 1903, says that the trade between Japan and the Philippines has made very rapid progress during the past few years. According to the latest returns, the imports from Japan for the eleven months ended November, 1901, amounted to no less than \$969,704, as against \$393,651 for 1900. Japan, on the other hand, imported from the Philippines merchandise to the value of \$1,521,531 in 1901, as compared with \$745,032 for the corresponding period in 1900.

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Camphor Forest Discovered in Formosa.—The London and China Telegraph, London, March 30, 1903, says:

An interesting discovery is that of a primeval forest in southern Formosa. The forest is of vast extent, covers, it is said, 50,000 acres, and contains 120,000 camphor trees, each measuring from 7 to 15 feet in girth. These are roughly estimated to yield 10,000,000 catties (13,100,000 pounds) of camphor, which, purchased by the monopoly office at 18 yen (\$8.96) per 100 catties (131 pounds), will be worth 1,720,000 yen (\$856,560), approximately. Besides, the forest abounds in "red-grained" oak.

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131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications are exhausted, and the Department is therefore unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

X PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Vol. 26 (1903).—Briquettes as Fuel in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, 1884-1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic.	Gold and silver.	Peso.....	\$0.96,5	Gold—argentine (\$1.82,4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc .....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis .....	.54,6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$3.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centesimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon (\$5.01,7); silver—peso (50 cents).
Denmark	Gold	Crown.....	.20,8	Gold—10 and 20 crowns.
Ecuador † .....	.....do	Sucre.....	.48,7	Gold—10 sucres (\$1.86,5); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland .....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,9).
France	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling..	4.86,6 $\frac{1}{2}$	Gold sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma .....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti .....	.....do	Gourde.....	.96,5	Silver—gourde.
India ‡	Gold	Rupree .....	.32,4	Gold—sovereign (\$4.86,5); silver—rupree and divisions.
Italy	Gold and silver..	Lira .....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen .....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia .....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin .....	.40,2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and $\frac{1}{4}$ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$2 (\$2.02,7).
Peru .....	.....do	Sol .....	.48,7	Gold—libra (\$4.86,5); silver—sol and divisions.
Portugal .....	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶ .....	.....do	Ruble .....	.51,5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland.....	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster .....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

¶ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce,

XIV VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1898.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	do	Peso .....	.96,5	.91,8	.....	.69,9	.68	.85
China	do	Haikwan tael.	1.61	.....	.....	.....	.....	.....
Colombia	do	Peso .....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do .....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold	Pound (100 piasters).	.....	4.97,4	4.90	4.94,3	.....	.....
India	Silver	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold.....	Yen.....	.99,7	.99,7	.....	.99,7	.99,7	.99,7
Mexico	do	do .....	.....	.....	.87,6	.75,3	.73,4	.91,7
Netherlands‡.....	Gold and Silver.	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Peru.....	do	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Russia.....	Silver	Sol .....	.92,5	.91,8	.81,2	.69,9	.68	.85
Tripoli	do	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,00	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia	do	Boliviano .....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.49,1	\$0.42,4
Central America.....	do	Peso .....	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee.....	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen.....	.83,1	.74,5	.66,1	.55,6	.54,9	.....
Mexico	do	Dollar .....	.83,7	.75	.66,6	.56	.53,3	.46
Peru.....	do	Sol .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§.....	do	Ruble.....	.61,7	.55,3	.49,1	.41,3	.39,3	.....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	.....

* See footnote to Austria-Hungary under Table A.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1	\$0.43,6	\$0.42,8
Central Amer- ica.	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
China.....	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael..	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †.....	do.....								
India.....	Silver rupee.....	.20,3	.20,7	.20,8					
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †.....	Silver sol.....	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	\$0.41,3	\$0.40,3	\$0.38,2	\$0.38,4	\$0.36,1	\$0.35,2
Central America.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
	Amoy tael.....	.66,9	.65,1	.61,8	.62	.58,4	.57
	Canton tael.....	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8
	Chefoo tael.....	.63,9	.62,3	.59,1	.59,3	.55,8	.54,5
	Chinkiang tael..	.65,3	.63,6	.60,4	.60,6	.57	.55,7
	Fuchau tael.....	.61,8	.60,2	.57,2	.57,4	.54	.52,7
	Haikwan tael....	.68	.66,3	.62,9	.63,1	.59,4	.58
China.....	Hankau tael.....	.62,6	.60,9	.57,9	.58	.54,6	.53,3
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.62,6	.59,5	.59,6	.56,1	.54,8
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53,4
	Shanghai tael..	.61,1	.59,5	.56,5	.56,7	.53,9	.52
	Swatow tael.....	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6
	Takao tael.....	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3
	Tientsin tael....	.64,8	.63,1	.59,9	.60,1	.55,2	
Colombia.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
Mexico.....	Silver dollar.....	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3
Persia.....	Silver kran.....	.07,6	.07,4	.07	.07,1	.06,6	.06,5

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.422 gallons.
Ardeb.....	Egypt.....	7.6907 bushels.
Are.....	Metric.....	0.02471 acre.
Arobe.....	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do	Brazil.....	32.38 pounds.
Do	Cuba.....	25.3664 pounds.
Do	Portugal.....	32.38 pounds.
Do	Spain.....	25.36 pounds.
Do	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine	Russia.....	28 inches.
Arshine (square).....	do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do	Spain (raisins).....	100 pounds.
Batman or tabriz.....	Persia.....	6.49 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7,096.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Cafiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	529 pounds.
Do	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do	Syria (Damascus).....	575 pounds.
Do	Turkey.....	124.7036 pounds.
Cantaro (cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1⅓) pounds
Do *.....	Japan.....	1.31 pounds.
Do	Java, Siam, and Malacca.....	1.35 pounds.
Do	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do	Darmstadt.....	110.24 pounds.
Do	Denmark and Norway.....	110.11 pounds.
Do	Nuremberg.....	112.43 pounds.
Do	Prussia.....	113.44 pounds.
Do	Sweden.....	93.7 pounds.
Do	Vienna.....	123.5 pounds.
Do	Zollverein.....	110.24 pounds.
Do	Double or metric.....	220.46 pounds.
Chetvert.....	Russia.....	5.7748 bushels.
Chih.....	China.....	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8,077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Deasiatine.....	Russia.....	2.6997 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.506 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4.9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,400 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	113½ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Gulana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1493 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.82838 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¼ pounds.
Sagene.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	do.....	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quintal (100,000 grams) equals 220.46 pounds.
 Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6418 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

Vol. LXXII.

JUNE, 1903.

No. 273.

NEW TARIFF OF PERSIA.

Vice-Consul-General John Tyler sends from Teheran, February 25, 1903, translation of the new Persian tariff act (put into operation February 14), as follows:

We, Muzafer-ed-din, by the grace of God and His Holy Prophet Absolute Ruler of the Empire of Persia;

Taking into consideration the declaration exchanged between Persia and Russia the 26th of Rajab, A. H. 1319, corresponding to the 27th of October, 1901, and ratified at Teheran the 13th of December, 1902, with a view to modifying and completing the provisions of Article III of the supplementary convention of the treaty of Turkomanchai, dated the 10th of February, 1828;

And in view of prior and subsequent treaties entered into between Persia and Great Britain, the Ottoman Empire, Spain, Greece, France, the United States of America, Austria-Hungary, Belgium, Holland, Denmark, Sweden and Norway, Italy, Germany, and Switzerland, and by virtue of which the subjects and imports of these countries into Persia, and likewise Persian subjects and imports into the said countries, enjoy in every respect reciprocal treatment in accordance with the most-favored-nation principle.

We have commanded and do hereby command that the customs duty on merchandise imported from Russia into Persia by Russian subjects, and the outward duty on merchandise exported by Russian subjects from Persia, is fixed in conformity with the provisions of the Tariffs A and C (vide appendix).

The customs duty of entry determined by the Tariff A will be applied in the same manner to imports into Persia coming from the before-mentioned countries which, on their part, accord to imports originating in Persia the most-favored-nation treatment; and the export duties fixed by the Tariff C will be applied in the same manner to exportations from Persia and actually intended for those countries.

With regard to the trade of countries which do not grant to the products of

Persia in the matter of customs the most-favored-nation treatment, the duty levied on merchandise coming from or going to such countries shall be double the ordinary rate determined by the Tariffs A and C, and 10 per cent will be added to the value of the articles exempt from duty by virtue of the said tariffs.

On condition of the payment of a fixed duty in accordance with the preceding article, the octroi dues, caravanserai, and market rates and taxes on weighing and similar imports, which previously belonged to the farming of the customs, are now and forever abolished, to the definitive exclusion of the right of governors and others, directly or indirectly, to reimpose them.

The taxes denominated rahdari (road tolls), which have hitherto been collected for the purpose of keeping the mule tracks in repair, are not under any circumstances to be reimposed. Exception is always made in regard to road tolls collected at the barriers on the carriage roads, admitting the transport of works of art, and for which a concession has already been granted or will be accorded by special firmans. The taxes to be collected by the concessionnaires on these roads will be also fixed by firmans.

The merchandise is held to be security for the duty, and the custom-house will not in any case permit the removal until this and other taxes due to the State have been paid.

Entry of goods is only to be made at such places where offices have been established for the collection of import and export duties.

The importer must, at the office of imports, deliver to the chief of the custom-house a written declaration in duplicate which shall contain an exact description of the merchandise, and state:

1. The country where the goods had their origin, whether the transport was by steamer or other vessel, the name, the nationality, and the place where the steamer or other vessel started on the voyage, as well as the name of the captain or owner.
2. The number, the kind, the marks, and numbers of the parcels entered.
3. The kind of merchandise contained in each parcel; and the quantity of the goods, according to size, weight, or measurement of the merchandise, the value, and the locality to which they are directed.
4. All other details necessary to facilitate the final assessment of the duties of entries, and to assist the officers of the administration to verify the goods.

The unit of weight, for merchandise taxed on that basis, is the batman, called the tabriz, of 640 miscals of Persian weight, equivalent to 7.27 Russian pounds, or 2.97 kilograms French numeration, or 6.49 pounds English. The duty chargeable on such merchandise, and levied, as enumerated in the tariff, on the gross weight, is to be calculated on the actual weight of the goods including the packing, which, according to the usages of trade, is with the goods transferred to the buyer, especially cans, casks, bottles, jars, or flasks containing liquids; pots and boxes of every kind, cardboard, envelopes in paper or linen, and all other coverings which neither can nor ought to be separated from the merchandise without damaging or modifying the same, and in which it is usually offered for sale either in bulk or retail.

With regard to other merchandise chargeable with duty according to weight, and on which the tariff does not specify what is to be levied according to the gross weight, the importers are to stipulate in their declaration if they desire the duty to be calculated according to the actual net weight (that is to say, after the package has been deducted from the weight of the goods) or whether according to the legal net weight (that is, the total weight of the merchandise, including all the package, whatever it be), the deductions forming the legal tare. In default of any indication in the declaration of a choice as above mentioned, the duty will always be calculated according to the legal weight.

The legal weight to be levied on goods by weight is fixed as follows:

1. For china, porcelain, glass, looking-glass without frames, and window glass, whether in cases or crates, at 40 per cent of the total gross weight.

2. For all other kinds of merchandise: (a) In cases or casks, 20 per cent of the total gross weight; (b) in hampers, cans, or other packing in copper, 8 per cent of the gross weight; (c) in matting, sacks, or similar package, 3 per cent of the total gross weight.

The calculation of the tare is not applicable to packages which but imperfectly inclose the merchandise—such, for example, as open spaces between the boards.

The declarants have to present the goods for verification divested of the package, and they must also undertake to repack them. The administration of the customs does not assume the least responsibility for loss or damage resulting from these manipulations.

The value of the merchandise to be declared at the custom-house is that which it had at the place of production, with the addition of package, purchase, insurance, and transport to the point of entry or exit.

If the customs officers shall consider the declared value to be insufficient, they can at their own option require the declarant to underwrite a supplementary declaration, or else retain definitively the merchandise by paying to the parties interested the sum of the value declared by them, with the addition of 10 per cent, under the title of indemnity. The custom-house undertakes to make the above payment as soon as possible, but not later than fifteen days from the time the preemption is notified to the declarant.

If the parties interested shall make a claim for the merchandise seized by preemption, it may be returned, less the payment of the supplementary duty owed and the costs and a fine, the amount of which is to be determined by the director of the province, or on appeal by the central administration.

Our Atabeg Azem [Prime Minister] is commanded to insure the execution of the present law, which is to be put into force on the 1st-14th of February, 1903.

A special decree will be shortly promulgated, in order to render as complete as possible the following regulations for putting into operation the new custom tariff, as well as the designation of the customs offices, and the authorized land routes both for importations and exportations.

In the interval before the publication of the said decree, cases not provided for by the present law will continue to be governed by the regulations observed up to the present.

Done at Teheran the 8th-20th of February, 1903.

MUZAFFER-ED-DIN.

By the Shah:

The Atabeg Azem,

EMIN-ES-SULTAN.

SCHEDULE A.—*Import duties.*

No.	Description.	Duty.	
		* <i>h. s.</i>	
1	Lucifer matches.....per batman † gross...	0 8	\$0.03
2	Live animals of every species.....	Free.	.....
3	Arms of every kind, including detached pieces or unmounted arms.....	(‡)	.....
	N. B.—Imports under this head are authorized by a special dispensation of the Government conformably with the law of the 5th of Ramazan, 1317, with a duty of 20 tomans (\$35) for a gun, 5 tomans (\$8.80) for a revolver, 2 tomans (\$3.52) for a pistol, and 7 tomans (\$12.32) per batman for all other arms, as well as for every detached or unmounted piece.		
4	Wood:		
	1. Wood for building purposes and cabinetwork of every kind, whether in the rough or sawn.....	Free.	.....
	2. Prepared wood, except for vehicles, furniture, and fancy articles, and comprising articles of carpentry, cabinetwork, and staves for casks, per batman.....	0 2	.01
	3. Wood not specified, such as for kindling.....	Free.	.....
5	Liquors:		
	1. Sparkling wines in bottles, quarts, or less.....	5 0	.40
	N. B.—The half bottles or less pay half the stipulated duty. Bottles which contain more than 80 centiliters (27 ounces) will pay a duty proportionate to their capacity.		
	2. Still wines in casks, demijohns, carboys, or bottles...per batman gross...	4 0	.32
	3. Alcohol, spirits of wine, and brandy not specified, comprising simple sweetened brandy as well as such as has been prepared by an infusion of fruits, in casks or in bottles.....per batman gross...	4 0	.32
	4. Cognac, rum, whisky, schiedam, arrack, tafia, vermouth, gin, kirsch-wasser, Dantzig brandy, kummel, and every kind of liqueur, such as chartreuse, benedictine, alhermes, maraschino, curaço, punch, absinth, crèmes, anisettes, etc., in casks or in bottles...per batman gross...	12 0	.66
	5. Beers, vinegars, and all other kinds of fermented drinks, in casks or in bottles.....per batman gross...	0 6	.02
	6. Lemonades.....do.....	0 10	.04
	N. B.—Lemonades containing more than 5 per cent of pure alcohol will be included in the category of nonspecified brandies.		
	7. Natural or artificial mineral waters.....per 10 bottles...	0 10	.04
6	Candles, tapers, ordinary candles, including night lights, torches, and wicks, per batman gross.....	0 8	.03
7	Coal, coke, and charcoal.....	Free.	.....
8	Raw beeswax.....per batman.....	0 10	.04
9	Food and alimentary preserves:		
	1. Butter and other food fats—		
	(a) Fresh or salted.....	Free.	.....
	(b) Preserved in cans.....per batman gross...	0 8	.03
	2. Cocoa of every kind, prepared or unprepared, comprising waste balls and chocolate.....per batman gross...	5 0	.40
	3. Coffee, comprising the shell, waste, berries, or the substitutes for coffee—		
	(a) Raw coffee.....per batman.....	5 0	.40
	(b) Roasted coffee.....do.....	6 0	.48
	N. B.—Coffee imported in small packets in cardboard boxes, in cans, or similar casings will be assessed per batman gross.		
	4. Food cereals and their products—		
	(a) Rice.....per batman.....	0 2	.01
	(b) Wheat, barley, oats, and other food cereals not specified.....	Free.	.....
	(c) Malt.....	Free.	.....
	(d) Starch and other feculents not food stuffs.....per batman.....	1 0	.08
	N. B.—Starch and other feculents, nonalimentary, imported in small packets, cardboard boxes, cans, or other similar casings, will be assessed for duty on the gross weight.		
	(e) Flour stuffs, including pearl barley and groats of every kind.....	Free.	.....
	(f) Macaroni, vermicelli, and other paste food stuffs...per batman...	1 0	.08
	(g) Biscuits, gingerbread, and pastry of every kind.....do.....	1 0	.08

* Krans and shahis.

† 1 batman=6.49 pounds.

‡ Prohibited.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
Food and alimentary preserves—Continued.		*k. s.	\$o.oz
5.	Dried chicory, roasted or ground.....per batman f...	0 4	\$o.oz
N. B.—Chicory imported in small packets, pasteboard boxes, cans, or similar casings will be assessed for duty according to the gross weight.			
6.	Cheese—		
(a)	Common, red, or white, made exclusively from milk or cream...	Free.	
(b)	All other kinds.....per batman...	3 0	.24
N. B.—Cheese imported in tin foil or in cans will be assessed for duty on the weight, with the covering added.			
7.	Fruits and berries—		
(a)	Fresh or dry, of every kind, with the exception of preserves, as well as almonds, walnuts, and hazelnuts.....per batman...	0 5	.02
(b)	Preserves, comprising jams, jellies, fruit pastry, lozenges, marmalade, fruit sweetmeats, juice, and sirup, in boxes, pots, jars, and similar coverings.....per batman gross...	1 0	.08
N. B.—Fruit juices and sirups which contain more than 5 per cent of pure alcohol will be included in the class of non-specified spirits.			
* * * * *			
9.	Vegetable oils—		
(a)	Olive oil.....per batman gross...	2 0	.16
(b)	Others, not specified.....do.....	0 4	.02
10.	Vegetables of every kind—		
(a)	Fresh or dried.....	Free.	
(b)	Preserved in boxes, pots or bottles, or similar coverings, per batman gross.....	1 1	.09
11.	Honey.....	Free.	
12.	Hens' eggs.....	Free.	
13.	Fish—		
(a)	Fresh, dried, salted, or smoked.....	Free.	
(b)	Preserved, comprising caviare, in cans, pots, jars, or similar coverings.....per batman gross...	1 10	.12
14.	Salt.....per 10 batmans...	0 2	.01
15.	Sugar—		
(a)	In loaf or candied.....per batman...	0 3	.01
N. B.—The duty to be levied on sugar will include the weight of the paper and string used as a covering.			
(b)	Moist or crushed sugar includes the brown quality and sirup or treacle.		
(c)	Sweetmeats, sugarplums, caramels, and sweet drops.....per batman...	1 0	.08
N. B.—Sweetmeats imported in bottles, pots, pasteboard boxes, cans, and similar vessels, or which are inclosed in lead or paper, are assessed for duty on the gross weight.			
16.	Tea—		
(a)	White tea.....per batman...	10 0	.80
(b)	All other kinds of tea.....do.....	6 0	.48
N. B.—Tea imported in small packets, pasteboard boxes, tin foil, or similar coverings is assessed on the gross weight.			
17.	Meats—		
(a)	Fresh.....	Free.	
(b)	Salted, dried, or smoked.....per batman...	1 4	.10
N. B.—Salted, dried, or smoked meat imported in metal coverings will be assessed for duty with the added weight of the covering.			
(c)	Preserved meat, including extracts of meat in cans, pots, bottles, or similar vessels.....per batman...	1 10	.12
18.	Drugs.....ad valorem.....	5 p. c.	
This section includes especially portions of herbs used in medicines which are not confined to one formula, medicinal extracts, essences, oils, balsams, opiates, plasters, ointments, cold cream, pills, pharmaceutical pomades, dis-			
* Krans and shahis. † 1 batman=6.49 pounds.			

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
	tilled waters from herbs, nonalcoholic, and in a general inclusion all pharmaceutical preparations without sugar and free from alcohol.		
	N. B.—Medicinal lozenges prepared with sugar, according to the method of making sweetmeats; and products prepared with alcohol, and also liqueurs of every denomination.		
11	Commercial samples or patterns not having any intrinsic value, comprising patterns of stuffs of 30 centimeters (about 12 inches) or less in length on the whole width of the material, and patterns on cards or in books, as well as illustrated catalogues.....	*k. r. Free.	
12	Spices:		
	1. Pepper, curry powder, allspice, mustard, cinnamon, nutmegs, cloves, per batman†.....	1 10	\$0.12
	2. Vanilla and saffron, which includes vanillin.....per batman...	30 0	2.40
	3. Truffles.....do.....	10 0	.80
	4. Spices, not specified.....per value.....	15 p. c.	
	N. B.—Spices of every kind inclosed in tin-foil envelopes, boxes, pots, bottles, or similar vessels will be assessed on the gross weight.		
13	Gums:		
	1. India rubber and its products—		
	(a) Raw india rubber.....per batman.....	0 8	.03
	(b) India rubber, prepared in tablets, in leaves, or cord.....do.....	3 0	.24
	(c) Goloshes and other foot wear in india rubber.....per 12 pairs.....	6 0	.48
	(d) Oilcloth of every kind.....per batman.....	2 0	.16
	(e) All other manufactures in india rubber, with the exception of wearing apparel, specially indicated, toys, and fancy articles, per batman.....	10 0	.80
	2. All other gums.....	Free.	
14	Wearing apparel:		
	1. Suits of clothes and for garments of every kind, of which the special material is the chief part, and plainly sewed, without ornaments, lace, or trimmings, with the exception of sashes, scarfs, veils, and the other objects mentioned in the different paragraphs of article 20.....	(‡)	
	2. All other articles used as clothes, but which are not specified in any other item of the tariff.....ad valorem.....	15 p. c.	
	This article includes, especially, articles in millinery garniture, of laces, fringes, ribbons, which have received additional hand work after the manufacture of the material; boas, handkerchiefs, mantles; sashes and girdles; hats, helmets, and bonnets of every kind; shoes, except those in leather and india rubber; corsets and braces; ready-made cravats and neckties; ready-made scarfs, shawls, veils, if they are trimmed with braids, laces, or other ornaments, with the exception of the objects mentioned in article 20; loose collars, handkerchiefs, and pads; gloves of every kind; gaiters and leggings, except such as are made of leather; handkerchiefs trimmed with lace; feathers, aigrettes, plumes, and ostrich feathers, and the skins of birds prepared for ornaments; dress preservers, etc., and in general all wearing apparel, and underlinen with laces, embroideries, and other trimmings.		
	3. Umbrellas and parasols.....ad valorem.....	5 p. c.	
15	Nonvegetable oils:		
	1. Petroleum, whether purified or not, in casks.....per 10 batmans...	0 3	.01
	2. The same in barrels or cans or similar package.....do.....	0 5	.02
	3. Not specifically denominated.....per batman gross...	0 4	.02
16	Instruments of music:		
	1. Cottage pianos and harmoniums, except the flute or pipe harmoniums, per instrument.....	400 0	32.00
	2. Grand pianos.....per instrument.....	800 0	64.00
	All other kinds of musical instruments.....ad valorem.....	20 p. c.	
17	Scientific instruments (philosophical, mathematical, and optical).....do.....	10 p. c.	
18	Animal substances, brutes not specified, comprising glue, feathers, and down in the raw state, silkworm seed, and animal manure.....	Free.	

* Krans and shahis.

† 1 batman=6.49 pounds.

‡ The duty on the material which enters chiefly into the composition of the objects will be increased by 50 per cent.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
19	Metals:		
	1. Iron and its products—	*k. s.	
	(a) Iron ore.....	Free.	.....
	(b) Iron, steel, cast iron in ingots, old iron, and scraps, per 10 batmans †.....	1 0	\$0.08
	(c) Iron and steel in bars, plates, sheets, and wire...per 10 batmans...do.....	1 5	.10
	(d) Tin in sheets.....	5 0	.40
	(e) Manufactures in cast iron, wrought iron, or steel...per batman... Under this head are comprised machines, tools of every kind, locks, nails, screws, spoons, forks, in iron; and knives called the peasant's knife, tables or ranges, with iron, bone, or common wooden handles, or other ordinary materials, pocketknives, scissors, exclusive of fancy articles. N. B.—Enameled articles, nickel plated with another non-precious metal, having handles of mother-of-pearl, ivory, tortoise shell, buck's horn, or ebony, shall pay on the principal duty an additional tax of 30 per cent.	0 7	.03
	2. Tin, lead, and zinc, and their products—		
	(a) Tin, lead, and zinc ores.....	Free.	.....
	(b) Tin, lead, and zinc, in bars, plates, leaves, and wire, per 10 batmans	6 0	.48
	(c) Manufactures in tin, lead, and zinc, exclusive of fancy articles, per batman..... N. B. (1)—Sheets of very thin tin or lead intended to cover other articles, such as roasted almonds, chocolates, and cheese, are considered as wrought goods. N. B. (2)—Enamel or nickel for plating other ordinary metals will be assessed for duty with an additional tax of 30 per cent on the principal duty.	1 0	.08
	3. Copper and nickel and their products—		
	(a) Copper and nickel ores.....	Free.	.....
	(b) Copper and nickel and their alloys, in bars, plates, sheets, or wire.....per 10 batmans... (c) Money in copper or nickel..... (d) Works in nickel or an alloy of nickel, exclusive of fancy articles.....per batman... N. B.—Enameled articles or plated with a common metal will pay an additional duty of 30 per cent of the principal duty and plated with precious metals 60 per cent of the principal duty.	6 0 (‡) 2 0	.48......10
	(e) Works in copper or its alloy comprising machines, mechanisms, the prepared copper called "srepeau," powder for bronzing and gilding purposes, and similar articles exclusive of fancy ware.....per batman... N. B. (1)—Powder for bronzing and gilding, and similar articles in tubes, glasses, bottles, boxes, pots, and similar casings will be assessed on the gross weight. N. B. (2)—Tinsel in books will be assessed on the total of the leaves and the book. N. B. (3)—Enamel and nickel goods covered with another common metal pay an additional duty of 30 per cent of the original tax and those plated with a precious metal 60 per cent.	1 0	.08
	4. Silver and platinum and their products—		
	(a) Gold, silver, and platinum ore.....ad valorem...	5 p. c.	.....
	(b) Gold, silver, and platinum in ingots.....do.....	5 p. c.	.....
	(c) Works wrought in fine silver or in fine plated silver, including fine silver in leaves, powder, and thread, with the exception of the thread named "cannetille," which is dealt with in section 22 of article 20.....per value... (d) Articles in fine gold or platinum.....do.....	5 p. c. 10 p. c.	..... .....

* Krans and shahis.

† 1 batman=6.49 pounds.

‡ Prohibited.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
Metals—Continued.			
5.	Metals not specified and their products—	* <i>l. s.</i>	
(a)	Metals not specified.....	Free.	
(b)	Aluminum and other metals not specified, in bars, plates, leaves, and thread.....per 10 batmanst...	8 0	\$0.64
(c)	Articles in aluminum or in other metals not specified, including machines, mechanisms, and tools, exclusive of fancy ware, per batman.....	5 0	.40
N. B.—Enameled, nicked, or plated with another common metal will pay an additional duty of 30 per cent of the principal duty and such as are plated with the precious metals 60 per cent of the principal duty.			
6.	Stones and their products—		
(a)	Rough stones.....	Free.	
(b)	Wrought stones polished or sculptured, comprising works in gypsum, exclusive of statues, statuettes, busts, vases used for furniture or decorations in habited places....per 10 batmans...	2 5	.18
(c)	Precious stones unpolished or cut, mounted or unmounted, including fine pearls.....ad valorem...	25 p. c.	
7.	Mineral products or materials not specially denominated, comprising cement lime, gypsum, clay, and plastic earth.....	Free.	
20	Textiles and their products:		
1.	Raw cotton.....	Free.	
2.	Cotton yarn of every kind, close or loose, glossy or dull, white or colored, including sewing cotton .....per batman... N. B.—Thread on bobbins, cards, etc., shall be assessed for duty according to their gross weight.	1 0	.08
3.	Cotton fabrics—		
(a)	Of every kind, white, bleached, in colors or printed, exclusive of such as are specially indicated.....per 10 batmans...	12 0	.96
(b)	Cotton velvet and plush.....do.....	25 0	2.00
(c)	Tulle, plain or figured.....do.....	25 0	2.00
4.	Raw wool, waste, or hair.....	Free.	
5.	Common felt, comprising articles manufactured in felt, exclusive of such as are entered in the category of clothes.....per 10 batmans...	5 0	.40
6.	Woolen and hair yarn of every kind. ....per batman... N. B.—Woolen yarn on bobbins, cards, etc., is assessed for duty on the gross weight.	1 0	.08
7.	Woolen carpets and table covers, if embroidered or bordered with a fringe or other similar ornament.....per batman...	3 0	.24
8.	Woolen fabrics—		
(a)	Indian or Shirvan woolen shawls.....do..... N. B.—Shawls made in imitation of those of India or Shirvan of European manufacture, duly certified, pay duty according to the quality of the material.	30 0	2.40
(b)	Whole-wool materials of every kind.....per batman... N. B.—Woolen stuffs which contain in the general make-up of the warp and weft more than 90 per cent of pure wool will be treated as if of pure wool.	8 0	.64
(c)	Woolen fabrics with a blend of cotton or linen or other vegetable threads, with a warp or a weft of pure wool, per batman	3 0	.24
N. B.—Stuffs blended with vegetable threads, embroidered or figured with wool, as well as scarfs and shawls with a mixture of vegetable threads, embroidered or figured with wool or trimmed with a fringe of wool, are assessed for duty on the stuffs according to the quality, with an addition of 10 per cent.			
9.	Linen, hemp, and other vegetable thread not specified, raw, including coarse	Free.	
10.	Raw jute containing waste.....per batman...	0 4	.02
* Krans and shahis. † 1 batman=6.40 pounds.			

*Krans and shahis.

† 1 batman=6.49 pounds.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
Textiles and their products—Continued.			
11.	Linen or hemp thread, loose or tight, and stuffs made of this vegetable thread, brown or bleached for packing, comprising sacks, per batman..	*k. r. o 6	\$0.03
12.	Jute thread or other vegetable filaments not specified, whether loose or spun, and materials of jute or other vegetable thread not specified, brown or bleached, rough, for packing or covering, including sacks, per batman.....	10 o	.80
13.	Every kind of linen and hemp material.....per batman...	10 o	.80
14.	Jute and other vegetable fabrics, exclusive of velvet and plush...do.....	1 o	.08
15.	Jute velvets and plush.....do.....	2 10	.20
16.	Silk in cocoons and floss and waste silk not combed.....	Free.	.....
17.	Raw silk, silk wads, floss, combed, dyed, or not dyed.....per batman...	4 o	.32
18.	Floss thread.....do.....	5 o	.40
	N. B.—Silk on bobbins, cards, etc., is assessed for duty on the gross weight.		
19.	Spun silk or silk prepared for embroideries or sewing.....per batman...	10 o	.80
	N. B.—Silk thread on bobbins or cards pays duty on the gross weight.		
20.	Silk fabrics—		
	(a) Silk woven from the waste.....per batman...	5 o	.40
	(b) Whole-silk materials, brocaded with pure or imitation silver gilt or not gilt, as well as pure silk velvet or plush, per batman.....	50 o	4.00
	(c) Pure-silk materials, all others.....per batman...	30 o	2.40
	N. B.—Silk materials which contain in their texture in the warp and weft more than 90 per cent of pure-silk thread will be treated as pure silk.		
	(d) Silk materials, blended with cotton or other vegetable thread, either warp or weft, with pure silk.....per batman...	15 o	1.20
	N. B.—Stuffs made of wool or vegetable thread, embroidered or figured with silk or real or artificial silver, gilt or not gilt, are assessed for duty according to the quality, increased by 20 per cent.		
	<i>General remarks.</i> —(1) Knitted or woven thread stuffs, as well as the products of these stuffs, which, beyond the weaving, have received no additional hand work—such, for instance, as handkerchiefs, quilts, rugs, tablecloths, table napkins, Scotch scarfs, shawls not specified, scarfs, veils and ribbons, knitted articles, etc.—follow the order of stuffs according to each kind; (2) articles made of stuffs knitted or woven, or any material whatever, hemmed or bordered with fringe of any kind, are assessed for duty in the same ratio on the stuffs as if the same articles were not hemmed or fringed.		
21.	Silver or imitation gold thread (drawn out in tinsel or thread), gilt or not gilt, with silver or fine gold, with silver or imitation gold spangles, lace, tapes, braids, ornaments, fringes, or other articles of trimming, as well as such as are mixed with tinsel, gilt or not gilt, with gold or silver.....per batman...	2 o	.16
22.	Fine silver thread, drawn or spun, called "cannetille" (gold or silver twist), gilt or not gilt, as well as braids, cordons, ornaments, fringes, and other articles for trimming of every kind of thread, blended with fine silver thread, whether gilt or not gilt.....per batman...	10 o	.80
	N. B.—Thread in fine gold or silver or imitation of both on bobbins, as well as articles for trimming on cards, pay a duty on the gross weight.		
23.	Embroideries and lace of every kind.....ad valorem...	20 p. c.	.....
24.	Stuffs not specified.....do.....	10 p. c.	.....
	This section especially includes horsehair materials, as well as plaits of straw, esparto, rush, asbestos, etc.		
25.	Ropes, cordage, vegetable fibrous string of every kind contained under the head of string.....per 10 batmans...	3 o	.24
26.	Rags and old cast-off clothes.....	Free.	.....

* Krana and shahis.

† 1 batman=6.45 pounds.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.
21	Haberdashery and ironmongery:	
	1. Trunks and boxes of any kind of wood, painted or unpainted, ornamental or plain, with fastenings and openings in metal; hampers, baskets, workbaskets, made of straw or other vegetable substance, cloth, etc., exclusive of fancy cases, small boxes, baskets, and sealing wax; glue or liquid glue; articles used for cleaning or polishing leather, boxes, wood, and metals, in boxes or flasks, such as encaustics, pomades, waxes, etc.....ad valorem...	*k. s. 5 p. c.
	2. All other objects.....do.....	5 p. c.
	This section contains particularly clasps, hooks and eyes of every kind, and includes fancy clasps and hooks for sashes, mantles, etc.; sewing and knitting needles, photographic instruments and accessories, such as films, sensitive papers, frames, etc.; silver tableware in new silver, in imitation silver, white silver or electroplate, and comprises spoons, forks, knives with electroplated handles, and every article intended for use or ornament of the table, mountings and fastenings in new silver, electroplate or similar metals; smokers' articles, such as cigar and cigarette holders, pipes, tobacco pouches and boxes, cigar and cigarette cases, ash holders, match boxes, and similar articles; office articles, such as inkstands, pens, penholders, penwipers, crayons, black-lead pencils, pencil holders, crayon holders, pencil pointers, rulers, compasses, etc.; toilet articles, such as silk-cord guards for watches, eyeglasses of every kind, crosses, shoe-horns, brushes and combs of every kind, toothpicks, nail polishers, sponges, etc.; articles in morocco of every class, such as pocketbooks, cardcases, needle cases, purses, and bags; traveling requisites, such as trunks, valises, bags, exclusive of coffers, hampers, and baskets, which are entered in paragraph 1 of the present section; ordinary optical articles, such as spectacles, eyeglasses, opera glasses, field glasses, etc., reoscopes, and similar articles; trusses; artificial jewelry of every class, comprising articles in jet, amber, and imitation stones, and pearls; fancy boxes and cases; boxes of colors, as well as their accessories, and colors in tabloids and tubes; buttons of every kind; walking sticks; playing cards; beads of every kind; pegs or tacks for shoemakers; cinematographs and similar instruments, and their accessories; horsewhips; thimbles; pins of every kind; needle-cases in wood or metal of every kind; fans and screens; fireworks; whips; ivory; tortoise shell; mother-of-pearl and articles made from this material, exclusive of objects mentioned in article 19; games and toys of every kind; lanterns of every class, including magic lanterns and projecting lanterns; cork in planks, cubes, and cut corks; masks; flints, touchstones; phonographs and similar instruments and their accessories, and furniture; bells, large and small; street lamps; and in general all other small objects in the precious metals and not specially mentioned in any other of the sections of the tariff.	
22	Furniture and articles of household use:	
	1. Furniture—	
	(a) In wood or iron of every class covered with woven stuffs or leather.....per 10 batmanst.....	1 5 \$0.10
	(b) Every other kind of furniture.....do.....	0 5 .02
	2. All other objects used in furnishing or in decorating inhabited places—	
	(a) Looking-glass and mirrors in frames, lamps, candelabra, branch and other candlesticks.....ad valorem...	5 p. c.
	(b) Not specified.....do.....	20 p. c.
	The articles specially include gilt frames, wands, and other things for framing; cups and vases of every dimension; cushions; clocks, large and small, and alarm clocks; statues, statuettes, and busts; pictures; ready-made hangings; and generally all fancy goods used to decorate mantels, brackets, etc.	

* Krans and shahis.

† 1 batman=6.49 pounds.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
23	Watches:	* <i>l. s.</i>	
	Gold watches.....each	20 0	\$1.60
	Silver watches.....do.	5 0	.40
	Other watches in gold and silver.....do.	4 0	.32
24	Ships and vessels, including rigging and accessories.....ad valorem	5 p. c.	
25	Objects of art and collections for museums.....	Free.	
26	Opium.....per batman †	60 0	4.80
27	Paper and its applications:		
	1. Paper for printing or writing, white or tinted, including common envelopes, exclusive of such as bear monograms, initials or vignettes, and paper in boxes or the fancy quality.....per batman	0 5	.02
	2. Fancy writing paper and envelopes in boxes or other covering, with or without monograms, initials, or vignettes.....per batman	7 0	.56
	N. B.—Writing paper imported in boxes will be assessed for duty on the gross weight.		
	3. Wall paper or imitation tapestry.....per batman	0 10	.04
	4. Other paper, including cardboard.....do.	0 5	.02
	5. Paper articles.....do.	5 0	.40
	This section in particular includes book covers, pasteboard, copy books, pressed bindings, account books, registers, paper and envelopes in linen, etc.		
28	Perfumery of every kind, comprising essential oils of perfumes and cosmetics, toilet oils and powders, dental pastes and washes.....ad valorem	15 p. c.	
29	Skins and their applications:		
	1. Raw lambskins, called bagdads.....per batman	1 0	.08
	2. Other skins, raw, dried, or salted.....do.	0 10	.04
	3. Tanned skins—		
	(a) Dressed furs.....per batman	10 0	.80
	(b) Skins, tanned and dressed.....do.	0 10	.04
	(c) Dyed, varnished, and chamois skins, as well as morocco or lacquer.....per batman	1 0	.08
	4. This article in particular includes saddlery, harness, shoemaking goods (in which leather forms the chief part), straps, etc., exclusive of fancy goods such as pocketbooks, purses, valises, etc.		
30	Pottery of every kind, exclusive of vases, statuettes, and fancy goods:		
	1. Tiles and bricks.....	Free.	
	2. Other articles in clay, simply baked.....per 10 batmans	0 10	.04
	3. Articles in delft and china of every kind.....per batman	0 8	.03
31	Chemical products of every denomination:		
	(a) Salts of soda.....do.	0 2	.01
	(b) All other kinds.....do.	1 0	.08
32	Typographic and lithographic goods:		
	1. Journals, reviews, books, engraved or printed, labels or trade-marks attached to merchandise.....	Free.	
	2. Other typographical or lithographical articles.....per batman	4 0	.32
	This section comprises images, engravings, stamps, etc., in detached sheets, books, covers, or bindings.		
	N. B.—Admission and entry of newspapers, reviews, and engravings are under the control of the Government.		
33	Gunpowder.....	(‡)	
	Under this head are included dynamite and all explosives of every kind whatever, having a detonating force equal or superior to ordinary cannon powder; also cartridges, gun caps, projectiles of every denomination, empty cartridges, whether supplied with caps or not, and all similar articles.		
	N. B.—The importation effected by virtue of a special dispensation of the Government in conformity with the law of the 5th of Ramazan, A. H. 1317 (article 32 of the present legal regulation), will be assessed for duty of 2 toman (\$1.50) per batman.		
34	Agricultural products and forage.....	Free.	
35	Resins and bituminous substances.....	Free.	
36	Saccharine and similar goods.....per batman	90 0	7.20

* Krans and shahis.

† 1 batman=6.40 pounds.

‡ Prohibited.

SCHEDULE A.—*Import duties*—Continued.

No.	Description.	Duty.	
		* <i>l. s.</i>	
37	Soaps:		
	1. Perfumed soaps.....per batman† gross...	1 0	\$0.08
	2. Other soaps.....per batman...	0 4	.02
38	Tobaccos:		
	1. Unmanufactured, in leaves or bruised.....per batman...	3 0	.24
	2. Manufactured tobaccos—		
	(a) Common cigars in boxes of a hundred or more, and which do not cost more than 80 francs (\$15.44) per thousand..per batman gross...	30 0	2.40
	(b) Other cigars.....do.....	80 0	6.40
	(c) Cigarettes and other manufactured tobaccos.....do.....	10 0	.80
	This section comprises tobacco prepared for the pipe, snuff, tobacco for chewing, the juice of tobacco (called prais), etc.		
39	Paints, colors, and varnish:		
	1. Aniline, aniline dyes, and all dyes prepared from aniline.....	(‡)	.....
	2. Indigo, cochineal (Persian kermes).....per batman...	10 0	.80
	3. Varnish, prepared with alcohol.....per batman gross...	5 0	.40
	4. Other varnish.....do.....	3 0	.24
	5. Paints and colors not specified.....do.....	1 0	.08
40	Vegetables and vegetable substances, not specifically denominated.....	Free.	.....
41	Glass:		
	1. Articles in common or cut glass with ornaments, such as engraved figures, whether done with burin or acid, pictures, enamels, gildings, silver plated, copper ornaments, alloys of copper, glass wadding, tissues made from glass, and articles made in it, exclusive of vases and fancy goods.....per batman...	2 0	.10
	2. All other articles not specified, exclusive of vases and fancy goods, per 10 batmans.	4 0	.32
	3. Window glass.....per 10 batmans...	2 0	.16
	4. Looking-glass, not framed and less than 50 decimeters square, per 10 batmans.	10 0	.80
	5. The same of 50 decimeters or more.....per 10 batmans...	20 0	1.60
42	Carriages and vehicles of every kind:		
	1. Carts, larrentases (small wagons), wagons, wheelbarrows, and similar vehicles, without springs, including locomotives either in detached pieces or not set up.....ad valorem...	5 p. c.	.....
	2. Every other kind of carriage or vehicle, comprising automobiles, velocipedes, etc., in detached pieces, or the whole not set up...ad valorem...	10 p. c.	.....

* Krans and shahis.

† 1 batman=6.49 pounds.

‡ Prohibited.

SCHEDULE C.—*Duties on exports.*

No.	Description.	Duty.	
		* <i>l. s.</i>	
1	Live animals:		
	1. Donkeys.....per head...	10 0	\$0.80
	2. Horses and colts.....do.....	30 0	2.40
	3. Camels.....do.....	50 0	4.00
	4. Mules.....do.....	40 0	3.20
	5. Bovine class—bulls, cows, etc.....do.....	10 0	.80
	6. Ovine class, including rams, ewes, goats, etc.....do.....	1 0	.08
	7. Live animals, not specified.....ad valorem...	10 p. c.	.....
2	Arms of every kind.....	(‡)	.....
3	Butter and culinary fats.....per 10 batmans†...	7 0	.56
4	Drinks of every kind:		
	1. Every kind of wine.....per batman...	0 5	.02
	2. Brandy and liqueurs of every kind.....do.....	2 10	.20

* Krans and shahis.

† Prohibited.

‡ 1 batman=6.49 pounds.

SCHEDULE C.—*Duties on exports*—Continued.

No.	Description.	Duty.	
		* <i>l.</i> <i>s.</i>	
5	Food stuffs and preserves:		
	1. Salt.....per 10 batmans†...	1 0	\$0.08
	2. Eggs.....per hundred...	0 5	.02
	3. Grain and its products—		
	(a) Rice, polished.....per 10 batmans...	0 15	.06
	(b) Unpolished rice and having the cuticle still on.....do.....	0 7	.03
	(c) Rice, not husked.....do.....	0 5	.02
	(d) All other grain.....do.....	1 0	.08
	(e) Flour for food.....do.....	1 10	.12
6	Textile materials in the raw state:		
	1. Silk in cocoons and waste not combed.....do.....	15 0	1.20
	2. Raw silk, wadding, and floss, combed and dyed or undyed.....do.....	30 0	2.40
7	Opium.....per batman...	20 0	1.60
8	Precious stones, mounted or unmounted, including pearls.....ad valorem...	5 p. c.	.....
9	Fish, fresh, dried, or salted.....per 10 batmans...	1 0	.08
10	Tobacco:		
	1. Unmanufactured.....do.....	10 0	.80
	2. Manufactured.....do.....	30 0	2.40
11	All other merchandise.....	Free.	.....

* Krans and shahis.

† 1 batman=6.49 pounds.

SILK CULTURE IN SYRIA.

In reply to various inquiries, Consul G. Bie Ravndal, of Beirut, under date of March 15, 1903, sends the following:

The business of the large silk-plantation owners in Syria is not as prosperous as formerly. Impaired seed, variable weather, more expensive labor, and intenser competition from Italy and the East are among the causes. It is impossible to state accurately the number of mulberry trees growing or the number of acres planted, but Syria is generally believed to consume about 200,000 boxes of seed, which would mean 40,000,000 trees and about 40,000 acres of land.

A soft, loamy soil, slightly reddish, indicating that it contains iron, is considered the best for the cultivation of mulberry trees. In Syria they are never planted in bush form. The seed commands 15 cents per pound, and each pound is believed to produce some 4,000 to 5,000 sprouts. At first, they are watered once a week; when one year old, they are transplanted into beds 15 feet square, and set out in straight lines, at a distance of 1 foot apart, with irrigation ditches between each square. Two-year-old trees are transplanted for the last time. The mulberry tree lives usually from twenty-five to thirty years. Two crops of leaves are harvested annually—the spring crop for feeding silkworms and the fall crop for sheep and cattle. Years ago, Syrian farmers produced their own silkworm eggs; now they buy them from France and Italy, with the understanding that the grain has been subjected to bacteriological examination according to Pasteur's

method. A crossbreed—half Japanese, half Corsican—is now being experimented with. This departure may to some extent affect the color of the Syrian product, as the Japanese worms produce white silk.

The utensils employed in Syria are primitive; the trays are of willow twigs and the stands in vogue are covered with straw, thus forming "silk houses," which are not infrequently blown down or crushed in a rain storm. The number of small independent farmers is on the increase, as the large estates are being cut to pieces. The prices obtained for cocoons depend entirely on silk prices, as daily quoted in Lyons telegrams. Fresh cocoons in 1902 commanded from 19 to 25 piasters (24 to 31 cents) per pound; dry cocoons, 230 to 260 piasters (\$2.87 to \$3.25) per pound.

Women and children play an important part in the Syrian silk industry, and a silk-raising family composed of man and wife and a child or two will work for the season on the basis of 4 boxes of silk grain. The season comprises sixty days. After selling his cocoons, the farmer engages in other agricultural pursuits or hires out to reeling factories, of which there are in Syria some 175, operating about 10,000 wheels. There are no reliable statistics regarding the number of persons actively engaged in Syrian silk culture.

PAINTS AND VARNISHES IN EASTERN TURKEY.*

The following data apply more particularly to the twin cities of Harput and Mezreh. The conditions are practically identical in the other commercial centers of this part of the Empire.

Varnish.—The merchants import annually about \$200 worth of varnish, of a very inferior quality, for the use of local cabinetmakers and other artisans. It comes from France, in bottles containing one-fourth of a pound, retailing at 8 cents apiece. Local cabinetmakers, especially those who have had experience in America, complain bitterly of the poor grade, the difficulty in applying it, and the slowness in drying. A good quality of American varnish, once introduced here, would supply a long-felt need.

Paints.—Some others are produced in this country, which is exceedingly rich in minerals. Most of the pigments, however, are procured from Germany, through Constantinople houses. They come in the dry form, packed in tins of 1 kilogram (2.2 pounds). These tins retail at \$2.50 to \$3.25. The trade amounts to about \$700 per annum. Blue, green, yellow, purple, and white are chiefly in demand. Soot is employed for black.

* Report made in reply to an inquiry from an Ohio firm, to which advance copy has been sent.

The linseed oil employed is produced in the country itself, and is of inferior grade and poorly boiled. No driers are employed. Turpentine and benzine are exceedingly expensive, and even petroleum is costly in the interior. In consequence of this state of things, woodwork is rarely painted, except in the buildings occupied by the American Mission and Euphrates College.

The climate here is exceptionally dry, but much more paint and varnish could be advantageously used were good materials available at reasonable prices, accompanied by full and plain instructions for their preparation and employ.

On account of heavy freight charges, it would be eminently desirable to have very careful instructions on the proper preparation of the native linseed oil, as well as on the most economical method of using the available driers.

Mr. S. G. Vartabedian, who has worked in the United States and is doing much to introduce American wares here, would be glad to take an agency for American colors and varnishes and push their sale actively. He can be addressed in the care of this consulate.

I shall take pleasure in furthering any effort to establish a market for these articles here and in the adjoining region.

THOMAS H. NORTON,

HARPUT, *February 20, 1903.*

Consul.

WHEAT CROP OF INDIA IN 1902-3.

According to the second general memorandum on the wheat crop of India for the season 1902-3, the condition of the crop in the United Provinces is so favorable that a full yield is estimated for the three eastern divisions and Oudh, and 90 per cent of a normal crop for the three western divisions; but in the Punjab and the Northwest Frontier Provinces the yield on unirrigated land, except in the sub-montane districts, is likely to be poor, unless rain falls very soon. The excellence and extent of the crop in the northern districts of the Central Provinces make up for the deficiency in the southern districts, and the estimated average yield for the whole area is 105 per cent of the normal. The estimates for Bengal are 92 per cent of the normal.

The area under wheat in the Punjab is estimated at 7,260,500 acres, against 7,227,000 acres last year; in the Northwest Frontier Provinces, at 855,000 acres; in Bengal, at 1,460,000 acres, against 1,460,000 acres last year; in the Central Provinces, at 2,600,000 acres, or about the same as that of last year. In the Bombay presidency (including Sind) the total area in British districts is estimated

at 1,266,000 acres, or 21 per cent below last year's area. The Native States return 581,000 acres, which is 35 per cent over last year's area and 6 per cent over the average. In Berar the estimated area under wheat is returned at 218,377 acres, being 20 per cent less than last year, but the season has been favorable and the outturn will amount to 75 per cent of a normal crop.

The amount of wheat exported is small compared with the production, and depends greatly upon the price ruling in Europe. The exports last year were 7,321,818 cwts.; of wheat flour, 529,328 cwts. were exported. This year it is probable there will be a larger quantity available for export, as so much will not be required for home consumption.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *March 12, 1903.*

COTTON CROP OF INDIA.

The following abstract as to the cotton crop of India for the season of 1902-3 is taken from Government statistics:

The area under cotton (15,750,000 acres) is the highest returned by the reporting districts during the last decade—8½ per cent over last year. The season has been favorable, and the yield of 2,800,000 bales is proportionately higher than the increase in the area. The estimates of the yield per acre vary greatly, without any assignable cause for the differences. The Larkhana district of Sind returns 300 pounds to the acre, while Berar returns only 40 pounds to the acre. The average is 72 pounds.

The following table shows the yield in bales of 400 pounds:

Province.	Estimated yield of current year.	Yield of previous year.	Average of preceding 5 years.
	<i>Bales.</i>	<i>Bales.</i>	<i>Bales.</i>
Punjab.....	229,005	213,466	178,705
Northwest frontier.....	5,768		
United Provinces.....	327,728	368,638	253,851
Bengal.....	20,400	19,756	25,049
Central Provinces.....	203,460	152,276	113,045
Berar.....	275,314	245,302	178,995
Bombay.....	795,233	518,396	681,975
Sind.....	74,001	62,188	38,284
Madras.....	156,260	130,130	186,180
Burma.....	21,114	13,125	
Hyderabad.....	250,986	300,301	180,690
Central India.....	294,563	216,726	106,808
Rajputana.....	164,142	87,858	73,523
Total.....	2,817,974	2,328,162	2,108,103

The following table shows the amount and value of cotton exported from India during the year 1901-2 and the principal countries of destination; 4,445,000 cwts. of this total was Bombay cotton:

Country.	Quantity.	Value.	
		<i>Cwts.</i>	<i>Rupees.</i>
United Kingdom.....	166,215	3,669,757	\$1,189,001
Austria-Hungary.....	372,721	9,326,555	3,021,804
Belgium.....	413,235	9,720,117	3,149,318
France.....	266,710	6,736,422	2,182,601
Germany.....	753,774	17,867,977	5,780,225
Italy.....	519,919	12,239,567	3,965,620
Russia.....	11,911	304,059	98,515
Spain.....	66,600	1,707,115	553,105
United States.....	2,858	86,909	28,159
Ceylon.....	7,127	184,054	59,633
China:			
Hongkong.....	221,344	5,671,547	1,837,581
Treaty ports.....	337,807	8,719,153	2,825,006
Cochin-China.....	11,652	309,172	100,172
Japan.....	2,526,183	67,287,433	21,801,128
Australia.....	5,499	146,221	47,376
Other countries.....	6,801	138,584	44,901
Total.....	5,700,014	144,260,933	46,740,545

WM. THOS. FEE,
Consul.

BOMBAY, February 27, 1903.

NEW DOCK AT BOMBAY.

The Bombay Port Trust, which owns the land on the foreshore and dockage of the city, has prepared a scheme for constructing a new dock with a water area of nearly 50 acres. The site will be between the Ballard pier, where the mails are now landed, and the present docks in the harbor of Bombay. The dock will have a depth on the sill of $33\frac{1}{4}$ feet at high water of ordinary neap tides.

Its entrance will be through gates convertible into a lock 600 feet long. There will be a dry dock from 800 to 850 feet in length. The scheme includes a deep-water dock-head pier 1,250 feet long, where mail steamers will be able to moor and passengers can step from the ship into the railway train, thus obviating the present unsatisfactory plan of transferring by launches.

Branch lines will run from the principal railways at Bombay, through Mazagon, to the dock-head pier. The Ballard pier will be trebled in length and connected with the dock-head pier, and the water space inside the angle of the two piers will be reclaimed and used as sites for bulk oil installations. The cost of the scheme, exclusive of the railway, is roughly estimated at 3 crores of rupees, or

about \$10,000,000. It is expected that it will be carried out without any additional charges on the port.

The steady growth of the trade of Bombay, in spite of the plague and the famines of recent years, is remarkable. Its commerce is now nearly half of that of all India; yet the city, by reason of its fine harbor and its splendid situation as a distributing center, is capable of great expansion in the future. The steady enlargement of its dock accommodation indicates how constant the growth of its trade has been.

The Prince's dock, with a water area of 30 acres, was opened in 1879. Even before it was completed the authorities recognized that further dock space was necessary. The Victoria dock, with a water area of 25 acres, was opened in 1887-88. These two docks, with their accessories, cost 221 lakhs of rupees (\$7,350,000), but they have long ceased to suffice for the rush of trade, and further schemes of extension have for years been under consideration. If government sanction for the new dock is obtained—and of this there is said to be no reasonable doubt—work will be commenced next winter.

WM. THOS. FEE,

BOMBAY, *March 7, 1903.*

Consul.

GOVERNMENT MONOPOLIES IN FORMOSA.

Consul-General E. C. Bellows sends from Yokohama, March 10, 1903, a clipping from the Japan Gazette relating to the operation of government monopolies in Formosa, as follows:

The report on the present financial and economic position of Formosa issued by Dr. Shimpei Goto, the civil governor, states that government monopolies have been created in opium, salt, and camphor. It goes without saying, remarks the Indian and Eastern Engineer, that the habit of opium smoking is pernicious, but when the Japanese took possession of Formosa they found there a population more or less addicted to the use of the drug. It was decided to abolish the practice by degrees. Only those who have suffered from its effects to the extent that it occasions intense pain to deprive them of their pipe are now permitted, by a special warrant which they are obliged to procure, to continue the use thereof. To newly commence opium smoking is strictly forbidden, or even to continue it unless it can be shown that abstinence is impossible. The government monopoly of the article was expressly established to facilitate the final extinction of the habit of using it. The revenue thus derived amounts at present to about £400,000 (\$1,946,600) a year. The revenue obtained from the salt monopoly is from £70,000 to £80,000 (\$340,655 to \$389,320) a year, and it will doubtless increase.

Formosa supplies almost the whole world with camphor, but when Japan took the island the industry was in a precarious state. Camphor trees were cut down with an utter disregard of consequences; the crudest processes were employed in manufacture. So a government monopoly was established, with the triple object

of protecting the trees, improving the method of production, and placing the industry upon a secure footing. The world's consumption of camphor is computed to be about 8,000,000 pounds weight per annum, and the production in Formosa is regulated accordingly. The yearly yield to the revenue is about £400,000 (\$1,946,600), so that opium, salt, and camphor together bring to the government a total profit of about £875,000 (\$4,258,187) a year.

The mention of an annual subsidy seems at first sight to negative the proposition that Formosa already yields a profit to the home Government, but the fact can be established without difficulty, as substantial benefits are being derived from the interstate commerce between colony and motherland, a trade that already amounts in the aggregate to close upon £2,000,000 (\$9,733,000) per annum. Dr. Goto shows, by figures which seem convincing, that Formosa has been a profit to Japan even in the first seven years of its existence as a colony, which is a sufficient proof of its vitality and of capabilities in general that are indubitably above the average. He considers its future as eminently hopeful, for it is based upon rich agricultural and mineral resources. Tea, rice, sugar, hemp and flax, indigo, paper, silk, cattle, marine products, coal, sulphur, and petroleum are all features of the Formosa trade. The steps taken by the government to encourage the industries which depend on these products can not fail to be beneficial, and the state revenues are being increased by the progress made.

BICYCLES IN CHINA.

The use of bicycles by the Chinese is increasing notably and the possibilities of the market are limited only by the abilities of the Chinaman to purchase.

A special study of the character of bicycles suited to this country will greatly increase the sale. In North China men travel extensively, and they would use the bicycle much more if it were brought within their means. The roads are somewhat rough, and a substantial vehicle is required to traverse them. The Chinaman is not a great mechanic and has little ingenuity, and wheels for his use should not be delicate or require much in way of repairs. On account of their manner of dress they generally prefer wheels designed for ladies.

Strength, durability, and cheapness, rather than lightness and comfort, should be the main features of bicycles designed for this market. A Chinaman will sit all day on horseback or in a cart in a position that would be simply unbearable for a foreigner. The people here do not want to pay for luxury.

The following suggestions by an experienced bicycle rider in China are worth careful study by manufacturers:

The modern bicycle has three great disadvantages on Chinese roads, at least in the north: (1) The pneumatic tire is subject to puncture and is hard to repair; (2) the pedals are hung too low and strike obstacles, such as stones and rough ground; (3) the chain gets full of grit, and is annoying in many ways.

The last item is eliminated in the chainless wheels, but this excellent device is as yet rarely met with in China. The American "Columbia Chainless" is a great advance, and with the cushion frame could be ridden comfortably with solid tires;

but its excessively low pedals make it an impracticable mount for rough roads. Some German wheels have the advantage of higher pedals. What is needed for China is embodied in the following specification, and the manufacturer who is bold enough to turn out a strong and plain bicycle along these lines will sell it by the thousand:

1. Chainless, dustproof gearing. If chain be preferable, protect against dust.
2. Pedals clearing the ground by at least 6 inches.
3. Cushion frame, with compensating device to equalize pedal reach.
4. Solid or other nonpuncturable tires.
5. Extra-thick spokes, with strong threads.

Let such a bicycle have the following accessories included in the price: Necessary tools for all nuts and screws, bell, frame luggage carrier, bar bundle carrier, and brake of simple construction.

Steel rims are liable to rust, and wood rims may warp from excessive moisture. Either kind will answer, though copper escapes danger.

Avoid unnecessary fancy work and nickel plating, to reduce cost. Luggage carriers are essential to the traveler in China, for he must carry his blanket and a few extra articles of clothing.

A bicycle designed especially for the use of the Chinese, with cheapness as a leading feature and the above suggestions followed, would have a good and growing market for years to come.

HENRY B. MILLER,

NIUCHWANG, *February 17, 1903.*

Consul.

AMERICAN FLOUR IN SIBERIA.

The fear of competition from native sources with our flour trade in Siberia has frequently been expressed. The price of flour, American and Manchurian, is advancing in Vladivostock. American flour, in my brief experience, has always been able to hold its own. As much again could have been sold, if certain American flour companies had been straightforward in their dealings with Siberian merchants. In one case, coming under my immediate notice, several hundred sacks of corn meal were substituted for a choice brand of flour. But for instances of similar character, our flour could have found a far more extensive market in Siberia.

Notwithstanding the cheapness of Manchurian wheat at Harbin—10 to 12 cents gold per pood (36.112 pounds)—and the establishment of several mills of considerable size, Manchurian flour has not yet driven out American flour from Vladivostock, despite the greater cost and added duty, nor is there any visible diminution in the demand for our staple.

Two days ago, the steamship *Lyra*, of the new Seattle-Vladivostock Line, brought 84,000 poods (3,033,408 pounds) of American flour from Portland, and several smaller orders have been placed within the month.

R. T. GREENER,

VLADIVOSTOCK, *February 15, 1903.*

Commercial Agent.

RUSSIA'S COMMERCIAL RELATIONS WITH MANCHURIA.

Along with the measures taken for the development of Russian industry there must be noted the efforts to extend the market for Russian products abroad. By conventions with foreign countries, Russia has secured entire territories free from foreign or hostile influences. The whole northern part of Asia Minor, according to the treaty between Russia and Turkey, is now placed under such conditions that Russian capitalists have the area open to them, to the exclusion of foreign enterprise. A situation analogous is found in Persia, where the entire northern portion is acknowledged to be under the exclusive economic influence of Russia. The Russian policy in Manchuria may be said to be due to the necessity of finding new markets for her industries. The marked difference between the Russian and the foreign capitalist is that the latter generally makes his venture at his own risk, without waiting for aid from his Government, while the Russian waits for the Government to smooth the way for individual enterprise. The great difficulty in carrying out Russia's ambition in the Manchurian market lies, strangely enough, in the transportation of her own merchandise. Despite her great railroad, she has no real advantage over the foreigner; under the present conditions of the road, no bulky cargo can pay for its transportation, and even under proper conditions the major part of the freight will go by sea. For instance, glassware, tobacco, and other lines of merchandise cost 1 ruble (51.5 cents) freight per pood (36.112 pounds) by sea from Odessa, but over 2 rubles (\$1.03) via the Chinese Eastern Railroad. As a matter of fact, foreign goods have been in Manchuria for three years, at least, and are so favorably known that efforts are already being made to counterfeit the more prominent articles. Russian settlements are springing up in northern and northeastern Manchuria, but the wants of these people are not extended. It is therefore problematical whether the Manchurian market will become a large consumer of Russian goods. It will depend more on the lack of enterprise on the part of foreign merchants than on the superiority of Russian wares or Russian methods.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *February 20, 1903.*

MOSCOW-DALNY THROUGH SERVICE.

I have to report that the Siberian Railway began direct through-train service on February 18 from Moscow to Dalny. The train is scheduled to reach Dalny in thirteen and one-half days. At Dalny, two steamers of modern construction, with all the latest improvements for the comfort of travelers, will meet this train and sail immediately, one direct to Nagasaki, Japan, and the other to Shanghai, the time being thirty-six and forty-eight hours, respectively, thus making the time from Moscow to Japan fifteen days and to Shanghai fifteen and one-half days. For the present, these trains are to run once a week, but the service will soon be increased to twice a week.

In addition to these steamers, the Chinese Eastern Railway will also run a line from Dalny to Chemulpo, Korea, and Shanghai and return. Another line will run from Dalny to Nagasaki and Vladivostock and return. Other steamship lines are in contemplation.

The Pacific terminus of the Siberian Railway through Manchuria—known as the Chinese Eastern Railway—is just now being turned over from the construction department to the operating department, and these steamer lines are being operated by the Chinese Eastern Railway. The railway and steamship lines are practically operated by the Russian Government, and their entrance into the carrying trade of the Chinese coast, together with the extensive expenditures of the Government in Vladivostock, Port Arthur, and Dalny, indicate the purpose of Russia to take an active part in the commercial and industrial life of the Orient.

HENRY B. MILLER,

NIUCHWANG, *February 19, 1903.*

Consul.

THE CHEMICAL INDUSTRY IN RUSSIA.

The following review of the chemical industry in Russia is translated from a recent number of the St. Petersburg Messenger of Trade and Industry:

The characteristic feature of last year was the almost total suspension of the import of chemical products and the very perceptible decrease in their prices, due to the growth of competition and improvements in manufacture. The demand for mineral acids, salts, and alkali has been largely supplied by home manufacturers, the import being confined to small ports and frontier towns. In addition to the works at Warsaw and Moscow, a new plant, with modern improvements, was completed at St. Petersburg, which caused, during the last year, a reduction of 30 per cent in the price of sulphuric acid and its by-products.

There has been a marked increase in the amount of sulphur and sulphuric pyrite produced and a decrease in their import, viz:

<i>Sulphur.</i>		Poods.	Tons.
1900.....		1, 102, 000=	17, 918. 5
1901.....		944, 000=	15, 349. 5
1902.....		93, 000=	1, 512. 2

Sulphuric pyrite (containing about 2 per cent of copper).

1900.....	3, 317, 000=	53, 934. 5
1901.....	3, 693, 000=	60, 048. 5
1902.....	3, 106, 000=	50, 504

The price of sulphur and sulphuric pyrite is gradually increasing, while that of azotic and muriatic acid has dropped from 75 and 80 kopecks (38.6 and 41.1 cents) to 65 and 70 kopecks (33.5 and 36 cents) per pood (36.112 pounds). The price of chloride of lime decreased from 2.25 rubles (\$1.16) in 1901 to 1.40 rubles (72.1 cents) at St. Petersburg, 1.30 rubles (67 cents) at Moscow, 1.45 rubles (74.6 cents) at Riga, and 1.60 rubles (82.4 cents) at Odessa. This decrease was due to the erection of a new factory in 1902, which used the electrolytic method. A comparison of the figures for the import of chloride of lime in 1902 and 1901—80,260,000 poods (1,305,040.5 tons) and 95,000 poods (1,544.7 tons), respectively—show that the prices of this product in foreign markets were less than those in Russia, and notwithstanding the duty—1.15½ rubles (59.5 cents) per pood—it was imported in large quantities, which import aided in decreasing the prices of the home product.

The trade in chemical products for manufacturing purposes shows a considerable increase of indigo and oxalic acid. The supply of the latter almost doubled during the last two years and now amounts to from 3,000 to 3,500 poods (48.7 to 56.4 tons) per month.

Competition and cheap varieties of foreign tannin have reduced the price of this product from 35 and 36 rubles (\$1.80 and \$1.85) to 30 and 31 rubles (\$1.55 and \$1.59) per pood.

A plant has been recently erected at Kineshma, in the Kostroma government, for manufacturing benzol and aniline from petroleum.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *March 6, 1903.*

TRADE NOTES FROM ALBANIA AND MONTENEGRO.

The official organ of the Royal Hungarian Commercial Museum in this city calls attention to the Albanian and Montenegrin markets for foreign goods.

Hungary, Austria, and Italy are rivals in Albania, but the last named has various advantages—first, by obtaining from Turkey the right to set up Italian post-offices in the chief Albanian cities; second, by establishing import and export offices in Italy for Albanian imports and exports; and, third, by opening a bank in Venice for Albanian

financial intercourse. The Commercial and Transportation Company, of Sarajevo, Bosnia, has appointed an agent in Albania.

The principality of Montenegro, which is in close touch, commercially, with North Albania, has never had a representative from the United States. Its import of grain, articles of personal use, and ammunition of all sorts amounts to more than \$100,000 in value. It uses Austro-Hungarian money and is therefore commercially united with Hungary, Austria, and Bosnia.

Both Albania and Montenegro offer a good market for American firearms.

Emigration to the United States has already begun from Bosnia, Montenegro, and western European Turkey.

FRANK DYER CHESTER,

BUDAPEST, *March 11, 1903.*

Consul.

TRANSPORTATION PROBLEMS AND PROGRESS IN GERMANY.

Notwithstanding the more or less general apathy and dullness which have characterized most branches of industry and trade in Germany during the past two years, it is remarked that this depression does not extend to enterprises which have for their purpose improvements in the transportation of passengers or freight. Not only in Berlin, but apparently throughout the Empire, the substitution of electric tramways for horse cars, the extension of trolley lines between neighboring towns and cities, and the improvement of service on lines already in operation goes on with unabated steadiness and vigor. Some of this progress is due to the fulfillment of plans and contracts which were made during the prosperous years preceding the summer of 1901. On the other hand, much of it is purely contemporary, the outgrowth of a progressive, ambitious spirit, which, once kindled, survives the ordinary fluctuations of business prosperity.

Especially is this true of Berlin, where the whole system of intramural and suburban transit has been revolutionized within the past five years. The last horse car has disappeared from the streets, replaced and superseded by spacious and comfortable electric tram cars which traverse every part of the city and lead to a constantly widening circle of populous suburban cities and towns, where, by reason of cheaper rents and more wholesome conditions, a large percentage of the better class of Berlin working people and commercial employees now live. Particularly in this suburban service is there a constant improvement in the capacity and speed of the cars, and

the efficiency with which long runs are made from the central city to remote suburbs without change or delay. It may be doubted whether any city on either hemisphere has a more satisfactory electric surface street-car service than Berlin.

BERLIN ELECTRIC RAILWAYS.

The elevated and underground electric railway* built by Messrs. Siemens & Halske, and opened for traffic in February, 1902, has proven a remarkable success, and after a single year of service has become the most popular of all interurban routes of travel. It carries passengers a distance of 3 miles in ten minutes for fares ranging, according to the class of the car, from $2\frac{1}{2}$ to $3\frac{3}{4}$ cents. Its traffic and earnings exceed by 80 per cent the estimates of the builders when the enterprise was planned, and it has demonstrated that any device of reasonable cost, which is well equipped, safe, and capable of shortening the time of transit between different portions of the city, will be promptly and liberally patronized. In one respect only the new line has encountered some difficulties. When the franchise was granted, it was necessary to obtain the consent of property holders in certain streets where overhead construction was to be used, and to these the promise was made that the jar and noise of passing trains would not be objectionable. But it is in practice very difficult to run a rapid train of three eight-wheeled cars over a track laid on aerial framework of steel without causing a vibration and resonance that may be disturbing to nervous people in adjacent buildings. So the new company found itself attacked in the courts and had to resort to all practicable means of deadening the vibration and reducing the noise of traffic. These experiments included, first, inserting three layers of felt between the rails and the wooden ties on which they are laid. This made some improvement, but did not satisfy the complainants nor the police. Next, in place of wooden sleepers, hollow iron girders were put beneath the rails and filled with loose sand, which, it was expected, would take up the vibration and thus deaden the shock. This, also, has been found partially effective, but not wholly satisfactory. A third plan has been to abandon the use of cross-ties and instead lay the rails on long longitudinal wooden sleepers, with cushions of lead laid beneath the rails. Finally, the car wheels have been in some way lined with wood, so as to break the continuity and consequent resonance of a metallic structure. All these experimental remedies are still on trial, but no definite conclusion concerning them has been announced.

The success of the new line, the comfort and economy of time

*See ADVANCE SHEETS No. 1302 (March 29, 1902).

that it insures to many thousands of people each day, have created a strong popular demand for further improvements in the same direction. The existing elevated and underground line traverses practically the whole length of the city from east to west. There is now an imperative demand for a similar rapid-transit line from north to south, and the municipal highways committee has now under consideration several projects, one of which, proposed by City Engineer Gerlach, contemplates a combined elevated and underground line from Reinickendorf, the extreme northern suburb, southward through the Thiergarten section and southwestward to the Grünewald, with branches into the central portion of the city. The other scheme is for a suspended electric railway on the Langen system, which will traverse the city from north to south in a circle or loop, so that no reversal of trains at terminal stations will be required. The trains are to be made up wholly of motor cars—viz, one second and two third class cars in each train, the three capable of seating 150 persons. Including stops, an average speed of 21 miles an hour is proposed, with a maximum of 30 miles an hour in the suburban sections, where stops are less frequent. There are obstacles to be overcome, among which is the consent of the present metropolitan elevated steam railways, whose viaduct will have to be crossed at several points, but the results achieved by the new electric elevated and underground line are so complete and satisfactory that public demand will override all obstacles and brook no unnecessary delay.

PROGRESSIVE DEVELOPMENT OF THE STATE RAILWAYS.

Not less noticeable is the spirit of improvement that has marked the administration of the Prussian State Railway system under the lead of Major-General Budde, the present Minister of Railways and Public Works, who had been trained and equipped for his duties by long experience as director of military transportation. One of his first steps as minister was to formulate a plan by which the State shall acquire control of the six large private railways remaining in Prussia, which have hitherto resisted all proposals to convert them to Government ownership. The Ministry of Finance has authorized the issue of the bonds necessary to finance the operation, which, when completed, will give the ministry of General Budde complete control of the railways of Prussia, which include long-distance connections with neighboring countries. Especially in the latter respect—through trains to distant points like Rome, Paris, Ostend, and St. Petersburg—the service, both in respect to comfort and convenience of dining, sleeping, and saloon cars and the speed attained, although still quite behind American standards, has shown steady progress during recent years. The run from Berlin to Frank-

fort, for example, which only a few years ago required fourteen hours, is now done comfortably in less than nine. The forthcoming spring schedule of the State railways will show several important changes, in all of which the through express service on main lines will be accelerated. Among other improvements of this kind, a new semidaily service between Berlin and England will be opened via the Hook of Holland, by which it is promised that the journey to London will be shortened by two or three hours.

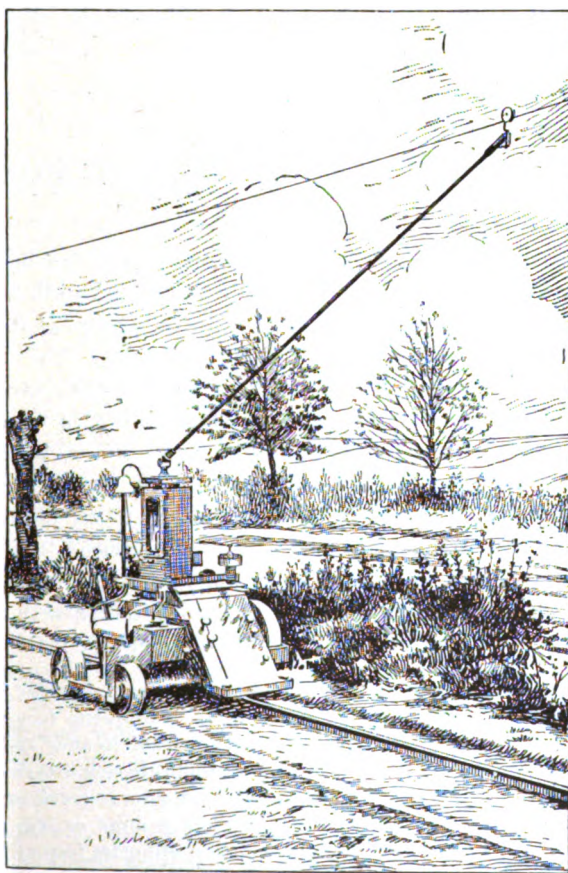
The plan for complete reorganization of the steam-railway passenger service between Berlin and the principal German cities (described in these reports—ADVANCE SHEETS No. 1415, of August 11, 1902) is still in the experimental stage. As will be remembered, this project contemplates the substitution, for the present system of three or four long daily express trains between the principal points, of hourly trains of about three cars, capable of carrying 100 passengers with their baggage and all necessary arrangements for their comfort, at a speed of 75 miles an hour. Prizes are offered by the National Society of Mechanical Engineers for the best designed locomotive and cars for this service, and the coming tests will be awaited with great interest by railway experts in all countries. The Prussian railway system is interesting as an important and typical example of Government ownership under European conditions, in which the direction and service are purely official and the element of competition between parallel lines wholly eliminated. From a financial standpoint the system has been an unquestionable success. In 1890 the revenues of the State railways exceeded expenditures by 501,000,000 marks (\$119,238,000), and in 1899 this surplus increased to 751,000,000 marks (\$178,738,000). Under the depressed conditions of last year the surplus earnings fell away somewhat seriously, but the railways still are and will remain a secure and important source of revenue to the State. That they serve the public as well—in respect to low freights, efficient passenger service, etc.—as the same lines would do under private management and the stimulus of free competition is a wholly different proposition and more than can be consistently claimed. The freight service is, in comparison with American standards, slow and expensive, and for these and other reasons is subject of frequent complaint from manufacturing and commercial interests. The Prussian Government now owns and operates 17,694 kilometers (10,995 miles) of main and 9,406 kilometers (5,845 miles) of subsidiary railway lines, and the six private companies, which the plans of Minister Budde would bring under Government control—all of which are located in eastern Prussia—will add 642 kilometers (399 miles) of main and 1,719 kilometers (1,068 miles) of secondary lines to the Government system.

ELECTRIC TRACTION ON CANALS.

It is perhaps one of the compensations incident to Government ownership of railways that it does not exclude or prevent due consideration of other methods of transportation. Notwithstanding the overshadowing interest of Prussia in her State railways, there is, especially in Imperial Government circles at Berlin, a keen and intelligent interest in all that relates to the improvement of internal water routes, for it is recognized that under existing conditions really cheap freights for raw materials and other coarse, heavy merchandise can only come from canal and river transportation. In deference to the general demand for improvement in this direction, the Government, early last year, formulated a plan for the employment of electric traction engines for towing boats on the Teltow Canal, a new work now in process of construction, which will connect the Havel with the River Spree just south of Berlin. The canal is to be 23 miles in length, with one lock, and passes for a short distance through a lake where tugs instead of towing engines will have to be used. It is to be completed some time during next year, and is expected to have an annual traffic of about 1,500,000 tons. For obvious reasons, this new canal will offer an admirable opportunity for the employment of the most improved method of towing, and accordingly bids were solicited for an electric installation to comply with certain prescribed conditions, the motors being adapted to towing boats ranging from 175 to 600 tons, loaded to 70 per cent of their capacity, and to be worked with a three-phase current of 8,000 volts and 50 periods. Twenty firms in all sent in tenders, of which the best known were Messrs. Siemens & Halske, Messrs. Ganz & Co., Messrs. Feldmann & Zehme, and the Société de Touage at Kiel. With characteristic forethought, the Government placed at the disposal of the competitors for preliminary experiments a section of the Finow Canal, which connects the Havel and the Oder rivers at Oderberg, some distance north of Berlin, and there during the summer of 1902 a series of tests were made which attracted great attention from engineers and traction experts throughout Europe. The system of Messrs. Siemens & Halske appears to have been similar in general design to that of Richard Lamb, which was tested several years ago on the Delaware and Raritan Canal and later on the Erie Canal in the United States. The motor—which was little more than a working model—weighed 900 kilograms (1,890 pounds), and with a continuous current of 500 volts developed 5 horsepower. The stretch chosen for the tests included a curved channel, bridge crossings, and the usual difficulties that would be encountered in actual practice. It was found that in rounding a curve the light motor was derailed, and the experiment showed that for actual service the

motor should be large and heavy enough to have at least 8 to 10 horsepower. To enable the towline to clear moored boats and other obstructions along the shore, the line was attached to the top of a mast 15 to 20 feet high and located centrally in the forward section of the boat.

Another example of the several proposed installations was the one submitted by Messrs. Ganz & Co., which is thus described:



TOWING ENGINE WITH TROLLEY, ON SINGLE RAIL, WITH TRAIL WHEELS.

The locomotive is relatively light and has two pairs of wheels, which are set at a convergent angle, so that both pairs run on the same rail, the balance of the machine being maintained by a pair of trail wheels running along the adjacent roadway. Almost the entire weight, however, is borne by the inclined wheels on the single rail, and the arrangement is such that the heavier the resistance load created by the boat the tighter the grip of the wheels upon the rail.

For an estimated annual traffic of 1,500,000 tons, it is proposed to equip one shore of the canal, and the service will require 53 locomotives capable of towing one boat of 600 tons or two of 200 tons each, besides six tugs to tow the boats across the lake. Whichever of the various competing systems may be adopted, it is certain that the Teltow Canal, when completed and equipped, will furnish a convenient object lesson of the latest and most improved application of electric traction to canal navigation.

BERLIN, *March 13, 1903.*

FRANK H. MASON,
Consul-General.

LIGNITE, PEAT, AND COAL-DUST FUEL IN GERMANY.

Since the publication of the last report of this series (ADVANCE SHEETS No. 1527, December 23, 1902) on the methods of manufacturing fuel briquettes from coal dust, lignite, and peat in Germany, two experienced engineers—one from New York, the other from Minnesota—have come to this country to make careful scientific studies of the subject for the purpose of assisting to transplant the industry, or such of it as may be adaptable to American conditions, to the United States. Both these experts have declared themselves astonished by the proportions of the fuel-briquette manufacture in Germany, the size and number of factories engaged, the amount of capital invested, the technical excellence of machinery employed, the permanent fireproof buildings, and the modernized methods of handling materials and product. One of them said:

Of all this, we have at home not the faintest conception. We read in a consular report that there are in this country 286 brown-coal-briquette factories with 691 presses; that they work up annually 44,211,000 tons of lignite; and that the 21 coal-dust-briquette factories of the Dortmund Syndicate alone turn out 2,100,000 tons of "industry briquettes" per annum, but such figures leave no definite impression. We haven't got beyond the stage where a more or less experimental machine press under a wooden shed is considered a briquette factory.

Meanwhile, each American mail continues to bring inquiries from owners of lignite, peat, and coal properties in many States and Territories, all asking for further details concerning German processes, the cost, capacity, and productiveness of machinery, thermal values and market price of the various kinds of briquetted fuel, and other information which it is difficult to condense into ordinary correspondence. With a view of answering more fully these inquiries—which at present relate more especially to the utilization of lignite and peat deposits—the present supplementary report is submitted.

I.—THE LIGNITE-BRIQUETTE MANUFACTURE.

It has been repeatedly stated that the outward cleanliness of Berlin and other German cities is principally due to the general consumption of brown-coal briquettes for household and steam fuel; further, that they are made from ordinary German lignite without the use of tar or other artificial binder; that they are compact to store, clean to handle, easy to kindle, burn with a clear, strong flame, are cheaper than good bituminous coal, and are made practically smokeless. Lignite varies in its value and adaptability for briquetting purposes according to its geologic age, hardness, and the percentage of water contained. A lignite with less than 30 per cent of water is very difficult to work by the usual processes, and it is for this reason that Austria-Hungary, which has an abundance of very old and hard brown coal that contains from 26 to 28 per cent of moisture, has practically no supply of briquettes from that source. German lignite, on the other hand, is of much more recent formation; it contains from 46 to 52 per cent of water, and is usually so soft that it can be cut with a spade. Many lignite beds in this country are filled with logs and pieces of wood, so well preserved in the matrix of partially carbonized material that they burn readily and form a cheap and abundant fuel for steam and other heating at the briquette factories. The part played by the water contained in lignite forms the key to the whole economic briquetting process. The crude brown coal is brought from the mine, crushed and pulverized, and then run through a large revolving tubular cylinder, heated by exhaust steam from the driving engine, and hung on an inclined plane so that the powdered material runs downward through the tubes by gravity and is carried into the machine press that stamps it into briquettes. During this passage through the cylinder, it is dried and heated until there remains the right proportion of moisture, combined with the proper temperature to develop the latent bitumen in the lignite and make the powdered mass plastic and easy to mold under heavy pressure between heated iron jaws into a hard, clean briquette, with a glistening surface and sufficient firmness of structure to stand weather, transportation, and other contingencies. To do this perfectly and economically, the natural lignite should contain, as it comes from the mine, approximately enough water so that heating to the proper temperature for pressing will evaporate out just sufficient water to leave it at the proper degree of moisture. The ideal proportion is about 45 per cent of water, so that German lignite contains rather too much, while Austrian contains much too little, though this latter difficulty has lately been partially overcome by steaming. The important question to be now decided is how American lignite will fulfill these requirements.

During the past six weeks, samples of lignite from near Bismarck, N. Dak., and from Troy, Ala., have been received at this consulate, turned over to the syndicate mentioned in a previous report,* and molded experimentally into briquettes with entire success. The Dakota lignite is old and hard, contains 38 per cent of water, but crushes and pulverizes easily and forms, without binder, briquettes of firm structure, which burn readily, are practically smokeless, and leave only 4 per cent of ash, while the best German brown-coal briquettes yield from 9 to 12 per cent of inorganic residue. The percentage of water contained is rather low, but by adapting the heating-drying process to that proportion of moisture, this obstacle, such as it is, can be easily met, and the reduced task of evaporation will be an economy in the general process.

The Alabama lignite, on the other hand, is an ideal material, and from the one sample submitted is conceded here to be even superior to the standard brown coals of Germany. It contains the correct percentage of moisture, crushes easily, and molds readily into firm, shining, black briquettes, so clean that, as one of the experts at Magdeburg said, "They might be used for paper weights."

The importance of these simple demonstrations will be inferred from the fact that, according to a recent State geological report, there are 55,000 square miles of lignite beds in the Dakotas and Montana, all near the surface of the ground, and ranging in thickness from 20 to 80 feet. The extent of the lignite deposits in the Gulf States is perhaps less exactly known, but they certainly cover a large area. There is also lignite in Missouri, Iowa, and several other Western States and Territories, and it is from all those hitherto practically neglected deposits that an inexhaustible future supply of smokeless domestic fuel will be derived. It will, therefore, be of interest to state concisely what constitutes a first-class, up-to-date lignite-briquette factory in Germany, where the industry has reached, after many years experience, its highest development. A typical example is the factory at Lauchhammer, about 80 miles south of Berlin, on the direct line to Dresden. This establishment, which is of the latest and most approved construction, has eight presses, with the necessary pulverizing, heating, and drying plant, run by electric motors with current generated by steam evaporated with wood from the mines, the whole under handsome, substantial buildings of brick, stone, and iron; and cost, with tracks, switches, and full equipment for handling raw material and loading the briquettes into cars, \$371,000, of which \$178,500 was paid for machinery. Each press weighs 32 metric tons and stamps out 100 to 120 briquettes per minute, or 70 tons in a double-turn day's work of twenty hours. The heating and

*ADVANCE SHEETS No. 1527 (December 23, 1902).

drying apparatus for each press weighs 18 tons. The power required for each press and dryer is 125 horsepower, and both the dryer and jaws of the press between which the briquettes are squeezed at enormous pressure are heated by exhaust steam from the Corliss engine in the power house, the whole supply for the eight machines being equivalent to about 150 horsepower.

Thus equipped, the plant at Lauchhammer turns out from 500 to 600 tons of briquettes per day, which sell on cars at the factory for from 7 to 9 marks (\$1.66 to \$2.14), according to season and market, with an average of 8 marks (\$1.90) per 1,000 kilograms, or metric ton of 2,204 pounds. Profits depend on the usual varying conditions—location, management, demands, etc.—but it is common to read in the Berlin papers official notices announcing dividends of brown-coal-briquette companies ranging from 15 to 20 per cent of their capital. So enormously has the industry been developed in recent years that there is now an overproduction, and it is said that 100,000 carloads (1,000,000 tons) of briquettes will be carried over to the fuel supply of next summer and autumn.

II.—THE UTILIZATION OF PEAT.

Peat as a material for fuel ranks next in natural order below lignite, in that it is of similar but much more recent geologic origin, contains more water, is but slightly carbonized, and has a correspondingly lower thermal value than brown coal. The task of converting peat into serviceable fuel consists in cleaning the material of roots and rubbish, reducing the water to a small percentage, and so condensing the peat in volume that its thermal value shall be raised to practical efficiency. This is done by various methods, some of which are in this country as yet partially covered by patents, but they may all be grouped under three heads, according to the form which the ultimate product is to assume, viz: (1) Compressed peat, with or without admixture of coal dust or other inflammable matter; (2) peat coke; and (3) briquettes made by compression, with or without heat, of the material prepared by the first of these processes.

Compressed peat.

A pioneer in the invention of machinery and processes for making compressed peat in northern Europe appears to have been Mr. C. Schlickeysen, of Rixdorf, near Berlin, whose installation and present methods have been mentioned in a previous report of this series.* His first two machines were of vertical construction, and were built in 1859 for a steam peat-compressing plant at Zintenhof, near Riga, in Russia, where they worked successfully for many

*ADVANCE SHEETS No. 1466 (October 11, 1902).

years, turning out daily about 80,000 pieces of wet compressed peat, which, after drying, were used as smokeless fuel in a large cloth factory at that place. During the ensuing forty years, he has built peat-compressing plants in Holland, Hungary, Switzerland, and at various places in Germany, constantly improving his equipment and processes with a view of perfecting the product, cheapening its cost, and substituting more and more automatic machinery for manual labor, until the system so evolved may be accepted as standard in this country.

Raw peat, as it comes from the bog, contains about 85 per cent water, 13 per cent combustible material, and 2 per cent inorganic matter. To obtain the 13 per cent of combustible elements in the cheapest, most direct manner, the peat is cut with spades and shoveled into the trough of a long, sloping belt-and-bucket elevator, which carries it up and drops it into a machine which cuts, tears, kneads, and mixes it to uniform consistency, in which state it passes downward and is forced out by a horizontal screw into long, plastic skeins about 3 by 4 inches in transverse section; these are delivered at the tail of the machine on boards 3 feet long, which are lifted off by hand when filled, laid on tram cars, and run out to a cleared space, where they are laid in rows on the ground and the skeins cut with a knife into bricks or sections 10 inches long, which, being left to dry, lose by exposure in ordinary weather one-half their water contents in a period of two weeks. The peat loses by this machine process one-third its bulk, so that a machine which works 21 cubic meters* of raw turf per hour delivers 14 cubic meters of clean peat or 7,000 wet bricks of the size indicated, which contain from 3 to 4 tons of dry compressed peat in a condition to be used as fuel. A plant of this kind includes, besides the elevator and grinding press, a 10-horsepower portable engine, which is fired with peat refuse, and cars and tracks for handling the material. The whole plant is movable, is taken bodily to the bog, set up at the farther edge of the moor to be worked, and moved backward as the peat bed is excavated and exhausted. An important recent improvement by Mr. Schlickeysen is an excavating machine, which in moors reasonably free from logs and stones digs and elevates peat with great rapidity, thus saving the hard, wet, unhealthy work of several men. The cost of such a plant, complete, with engine, tracks, cars, etc., ready to operate, is 18,620 marks (\$4,431), and its operation, when used without machine digger, employs 17 men besides engineer and fireman, a total cost for labor in North Germany of 120 marks (\$28.56) per day. After air-drying on the ground until their water contents are reduced to 38 or 40 per cent, the peat blocks are built up in open

* 1 cubic meter = 35.316 cubic feet.

formation, like bricks in a kiln, to dry until the water is reduced to 15 to 18 per cent, when they become a fuel with a thermal value of 3,000 to 4,000 calories. This value may be increased by converting the air-dried peat into briquettes, which is done by heavy pressure with heat in a machine press specially constructed for the purpose.

One of the important improvements of recent years has been attained by mixing the peat pulp, as it passes through the grinding machine, with other inflammable materials, viz, bituminous-coal dust or slack up to 30 per cent, anthracite culm to 40 per cent, or dry sawdust to 15 per cent. These dry, pulverized materials, when mingled with the wet peat, not only greatly enhance its subsequent value as fuel, but facilitate the drying process and render it tough, dense, elastic, and capable of being pressed cold into salon briquettes of high quality.

There are in the State of New Jersey, within easy distance of the coast, extensive peat beds which have not hitherto been utilized. There are at the terminal coal yards in Jersey City and Hoboken large quantities of coal dust, both anthracite and bituminous, that are treated as waste. May not the neglected peat and the worthless dust of the coal yards be combined by processes already perfected and successful here into a clean, cheap, and effective fuel for household purposes?

Peat coke and secondary products.

But by far the most modern, scientific, and rational method of utilizing peat appears to be that of converting it into coke, by carbonization in retort ovens with recovery of the gas, tar, and other by-products of distillation. This has been the subject of many years' study and experiment in Germany, the best results of which have been embodied in the system perfected and patented by Martin Ziegler, a chemical engineer of high reputation, which gives to the manufacture of peat coke the dignity of a perfected industrial process. Concisely stated, the Ziegler method consists in carbonizing peat in closed ovens, heated by burning under them the gases generated by the coking process itself. Such a plant is therefore self-sustaining, the only fuel required being coal or wood sufficient to heat the oven for the first charge, when the gases generated by the coking process become available and enable the operation to be repeated and continued indefinitely. Not only this, but the off-heat from the retort furnaces passes on and heats the drying chambers in which the raw, wet peat is prepared for the ovens by drying to the point of economical carbonization. There is transmitted to the Department as an exhibit with this report a sample* of 1 kilogram

* Filed in the Bureau of Foreign Commerce, where it may be examined by parties interested.

(1,000 grams, or 2.2 pounds) of raw peat and the several products derived therefrom by the Ziegler process, each in its due proportion, as follows: Three hundred and fifty grams of coke, 40 grams of tar, and 400 grams of gas liquor, from which last is derived 6 grams of methyl alcohol, 6 grams of acetate of lime, and 4 grams of sulphate of ammonia. If this sample be multiplied a thousandfold to a metric ton, and the value of each product given at its present market price in Germany, the demonstration would be as follows:

Description.	Value.	
1 ton (1,000 kilograms) of peat, costing, dried, 5 marks (\$1.19), produces—	<i>Marks.</i>	
350 kilograms (771.6 pounds) of peat coke.....	15.75	\$3.75
40 kilograms (88.2 pounds) of tar.....	2.20	.52
6 kilograms (13.2 pounds) of methyl alcohol.....	4.20	1.00
6 kilograms (13.2 pounds) of acetate of lime.....	.72	.17
4 kilograms (8.8 pounds) of sulphate of ammonia.....	.88	.21
Total.....	23.75	5.65

The peat coke produced as the primary product of this process is jet black, resonant, firm, and columnal in structure, pure as charcoal from phosphorus or sulphur, and, having a thermal value of from 6,776 to 7,042 calories, it is so highly prized as a fuel for smelting foundry iron, copper refining, and other metallurgical purposes that it readily commands from 40 to 50 marks (\$9.52 to \$11.90) per ton. It is also a high-class fuel for smelting iron ores, but as the process is comparatively new and the output limited, it is as yet too scarce and expensive for blast-furnace purposes. Crushed and graded to chestnut size, it forms an excellent substitute for anthracite in base-burning stoves. In larger lumps, as it comes from the oven, it fulfills substantially all the various uses of wood charcoal as a clean, smokeless fuel. The cost of a four-oven plant, with all apparatus for cutting and drying the peat, distilling the gas liquor, and extracting paraffin from the tar, is given at \$95,200. Such a plant is reckoned capable of working up annually 15,000 tons of peat, the various products of which would sell, at present wholesale-market prices, for 494,100 marks (\$117,596). A plant of 12 ovens, with all appurtenances complete, would cost \$261,800 in Germany and should produce annually products worth \$350,000, from which, deducting the carefully estimated cost of peat, labor, depreciation of property, and other expenses—\$179,200—there would remain a profit on the year's operation of \$170,800. This process is in successful operation at Redkino, in Russia, and the German Government has evinced its practical interest in the subject by placing at the disposal of the company a large tract of peat-moor lands, the

property of the State, on which extensive works will be erected during the coming year.

III.—COAL-DUST BRIQUETTES.

While Germany is preeminent in the scientific utilization of lignite and peat as materials for prepared fuel, it is not apparent that this technical superiority is so absolute in the treatment of coal dust. It is true that the coal-briquette manufacture is fully organized and developed in this country, that there are several German builders of coal-briquetting machinery who are masters of that branch of construction, but the same is true of France, Belgium, and England, where the conversion of coal waste into briquettes for locomotive and other steam fuel, as well as for grates and heating stoves, has long been a standard and established industry. It is not known that it has anywhere been found possible to make a marketable briquette of bituminous or anthracite coal dust without the use of a matrix or binder to hold the pulverized material together. The percentage of binder required varies with the composition of the coal, from 2 to 10 per cent, and, as has been previously explained, the pitch of coal tar, which is the binder ordinarily used, costs in Germany from \$10 to \$12 per ton, and at that price its use for briquetting purposes in a higher proportion than 6 to 7 per cent is commercially unprofitable.

The ingenuity of inventors in European countries has of late years been directed especially toward improvements in binders and the discovery of materials other than coal tar which would answer the same purpose. One hears and reads from time to time of a new matrix which will cheapen the cost of coal briquettes, facilitate their manufacture, or improve their quality; but these accounts are founded rather on the claims of inventors and promoters than on demonstrated industrial results. One of the latest and most interesting of these discoveries is reported from England, where it is stated that Messrs. William Johnson & Sons, makers of briquette machinery at Leeds, have in use a binder produced by an inventor named Cory, which, when used with Cardiff coal, produces industrial briquettes which are practically smokeless. This fuel is under trial by the British Admiralty; and a photograph has been published showing two war vessels steaming side by side—one burning raw Cardiff coal, with volumes of dense smoke trailing from its chimneys; the other using Cardiff briquettes made by the Cory process, leaving an aerial wake as clear as though the furnaces were soaked with charcoal or anthracite. So far as appears, this process does not claim to use the inferior waste of mines or coal yards, but takes good coal, condenses and renders it compact to transport and, to all

practical purposes, smokeless. It is further stated that a machine costing \$4,500 will produce 50 tons of briquettes per day, and plans are matured by which one or more of them will be exhibited in operation during the coming exposition at St. Louis.

BERLIN *March 19, 1903.*

FRANK H. MASON,
Consul-General.

PRIMARY COMMERCIAL EDUCATION IN GERMANY.

In a former report* to the Department of State I described in detail what German chambers of commerce are doing for commercial education in this Empire. In order to give a comprehensive view of the subject, I divided commercial education in that report into five distinct grades, as follows:

- I.—Primary commercial schools (Kaufmännische Fortbildungsschulen).
- II.—Commercial schools (Handelsschulen).
- III.—Advanced commercial schools (Höhere Handelsschulen).
- IV.—Classified commercial courses (Handelsfachklassen).
- V.—Commercial universities (Leipzig and Cologne).

This report brought a great many letters of inquiry to this office. I have been requested by a number of persons in America who are interested in this subject to give a detailed report on the first of the above-named divisions, or primary commercial education as it exists in Germany to-day.

The subject is a vast one. In 1895 the Chamber of Commerce in Brunswick attempted, through a series of circular letters, to get all the information possible about these schools or classes in Germany. The attempt proved a failure; in many cases the letters of inquiry remained unanswered. Finally, a few persons interested in the subject consented to study up the matter in various localities. In 1896, the Brunswick Chamber of Commerce published the results† of its investigations. I have used this publication in connection with my own inquiries on the subject.

PRUSSIA.

(a) THE RHINE PROVINCE.

Reasons for establishing primary commercial schools.—It was after the creation of the German Empire in 1871 that the need of elementary commercial education took firm foothold in the Rhine Province.

* See ADVANCE SHEETS No. 1373 (June 21, 1902).

† Kaufmännisches Fortbildungs Schulwesen, von Dr. Stegemann. Verlag—Albert Limbach—Brunswick.

The war with France gave an irresistible impulse to commerce and industry. Competition for markets became sharper year after year, and the increase of population soon made it apparent to merchants and manufacturers that the training of apprentices was an indispensable necessity in the search for markets. In Germany, the conviction is everywhere manifest that the manufacturers of the Empire would play a losing game unless the supporting factor of commercial education be maintained at the highest pitch of skill and perfection.

The following table will show the number of primary commercial schools at present in the Rhine Province:

Location.	Date of founding.	Number of pupils.	Number of pupils per 1,000 inhabitants.
Rheydt.....	1874	25	0.83
Wetzlar.....	1874	40	4.91
Duisburg.....	1880	28	.4
Aix la Chapelle.....	1883	196	1.72
Cologne.....	1885	230	.....
Elberfeld.....	1886	130	.93
Coblenz.....	1887	102	2.95
Essen.....	1887	122	1.28
Crefeld.....	1887	173	1.02
Düsseldorf.....	1888	250	2.33
Barmen.....	1889	132	1.06
Mülheim.....	1889	40	1.08
Trier.....	1889	65	1.8
Remscheid.....	1889	78	1.68
Gummersbach.....	1892	31	2.82
Bonn.....	1893	156	4.19
Saarbrücken.....	1893	51	1.55
Gelden.....		8	.8
Total.....		2,114	.....

It should be stated that the school in Gummersbach was founded by the Prussian State. The schools in Trier, Mülheim, Düsseldorf, Crefeld, Bonn, and Barmen were founded by the chambers of commerce in those cities. Those in Aix la Chapelle, Cologne, Elberfeld, Saarbrücken, Wetzlar, and Remscheid were founded by the merchant unions. In Coblenz, Rheydt, Geldern, and Duisburg the schools were established by the merchant unions and private individuals. The school at Rheydt is exclusively for girls, while those in Bonn, Coblenz, and Cologne are coeducational.

Compulsory attendance.—There is a general law in the Rhine Province which compels all apprentices under 18 years of age to attend either the primary commercial schools or other schools of similar character. It would seem that the application of this law is left chiefly to local option, as only Trier and Wetzlar have thus far made use of it. The other schools accomplish as good results without resorting to this compulsory law.

Conditions of admission.—The conditions of admission are, for the most part, different in each school. In many, the sons of the municipal authorities, lawyers, etc., are admitted on an equal footing. The majority, however, admit only the sons of tradesmen.

*Curriculum.**—French, English, Spanish, Italian, bookkeeping, arithmetic, correspondence, stenography, and drawing are taught for the most part in the 18 primary schools of the Rhine Province.

Inspection.—The board of directors of these schools consists usually of a committee chosen from the municipal authorities of the city in which such school is located. This board selects the curriculum, attends examinations, solicits funds, chooses teachers, and makes all necessary recommendations to the minister of education. The mayor of the city is usually chairman of the board.

Vacations.—In most German primary commercial schools the vacations come at the same time as those in other public schools of the Empire.

Financial aid.—The following tables will show to what extent these schools or classes in the Rhine Province are supported by the State, cities, and chambers of commerce. The money is given only for the purpose of making good yearly deficits.

The Kingdom of Prussia gives support to schools in the following cities:

	Amount.
Aix la Chapelle.....	\$200. 00
Crefeld.....	452. 20
Cologne.....	428. 40
Trier.....	100. 00

The following schools receive support from the cities in which they are located:

	Amount.
Barmen.....	\$250
Bonn.....	240
Coblenz.....	75
Crefeld.....	75
Gummersbach.....	300
Saarbrücken.....	75

(b) BRANDENBURG.

In the province of Brandenburg, there are at present primary commercial schools in the following cities: Berlin, Brandenburg, Cottbus, Potsdam, Spremberg, Cüstrin, Forst, Frankfort-on-the-Oder, Rathenow, Guben, Havelberg, Landsberg, and Sorau.

There are four such schools in Berlin and two in Frankfort-on-the-Oder, while the other cities have but one each. There is also a primary commercial school for girls in Berlin.

*For information in regard to text-books used in every branch taught, I would advise those interested to write to Bernhard Liebisch, Kurminz streets, 6, Leipzig.

(c) PROVINCE OF SAXONY.

There are 40 cities which have a population of more than 5,000; only 14 have primary commercial schools. Twenty-four of these 40 cities have more than 10,000 inhabitants, and 12 of these have such schools. It will be seen, therefore, that the number of schools is insignificant compared with the material wealth and development of this part of Germany.

These schools are in the following cities: Halle, Erfurt, Marseburg, Weissenfels, Eisleben, Magdeburg, Burg, Zeitz, Aschersleben, Neuhaudensleben, Wernigrode, Gardelegen, and Mühlhausen.

Magdeburg has two primary commercial schools, one founded in 1886 and the other in 1888. In Eisleben and Zeitz, school attendance is compulsory. This applies to all apprentices under 18 years of age, with the exception of those who have passed the prescribed examination which admits them to one year's service in the army. Girls are admitted to the school at Eisleben, although attendance is not compulsory.

(d) HANOVER.

The primary commercial schools of Hanover are among the best organized schools of this class in Germany. They are: Hanover, Peine, Emden, Goslar, Göttingen, Lüneburg, Celle, Leer, Osnabrück, Harburg, and Hildesheim.

(e) SCHLESWIG-HOLSTEIN.

In Schleswig-Holstein, commercial primary schools have as yet been but little developed. This is perhaps due to the fact that these schools are, for the most part, private enterprises. No compulsory laws being in force, the attendance is poor. There are only four such schools in Schleswig-Holstein, namely, Kiel, Altona, Flensburg, and Schleswig.

(f) WESTPHALIA.

Westphalia was the last of the Prussian provinces to introduce primary commercial classes. With the exception of the school at Iserlohn, the ten schools in Westphalia were all established between the years 1888 and 1895. These schools are the following:

Located in—	Founded by—
Arnsberg	Chamber of Commerce.
Bielefeld	City.
Bochum	Merchant Union.
Dortmund	Chamber of Commerce and city.
Gelsenkirchen	Merchant Union.
Hagen	Do.
Herford	Do.
Iserlohn	Do.
Minden	Do.
Witten	Do.

The above schools receive assistance each year over and above tuition collected as follows:

School.	From State.	From city.	From chamber of commerce, etc.
Bochum	\$357		\$25
Hagen	250		175
Iserlohn	125	\$175	
Herford	75	75	75
Minden	75	50	
Dortmund		250	125
Witten		(*)	25
Arnsberg		(*)	(*)
Bielefeld	(*)	(*)	(*)
Gelsenkirchen	(*)	(*)	(*)

* These schools receive assistance from private individuals, it having been impossible to learn the amount.

The building, light, and heat are usually furnished by the municipal authorities of each city. It costs each student on an average \$5 to \$7 annually for each subject taught. Compulsory attendance is in force only at Bielefeld and Herford.

(g) SILESIA.

There are about twenty-five primary commercial schools in Silesia.* On the whole, these schools do not play an important part in the educational system. The curriculum, however, in most cases is extensive, even more so than in other provinces of Prussia, where education of this nature is farther developed. The subjects taught in the Silesian primary commercial classes are: German, English, French, bookkeeping, commercial law, transportation, geography, materials of commerce, history, arithmetic, correspondence, stenography, and political economy.

The schools are supported chiefly from tuition fees, but many commercial organizations give assistance when necessary. It is claimed by those who are posted on the subject that the schools suffer from a want of preparation on the part of the pupils. Attendance is not compulsory.

(h) NASSAU.

The primary commercial schools in the province of Nassau were founded chiefly by the merchant unions. This was the case in Frankfort-on-the-Main, Hanau, Eschwege, Wiesbaden, and Marburg. In addition to these schools, one was founded in Hersfeld in 1893, through the instrumentality of a bookkeeper and a teacher in that city.

* I have been unable to secure a list of the cities in which these schools are located.

(j) EAST AND WEST PRUSSIA.

The primary commercial schools of these provinces are located in Königsberg, Danzig, Elbing, and Thorn. In Königsberg, school attendance is not compulsory. The pupils number about fifty. The board of directors is made up entirely of merchants and manufacturers, with the director of the school as chairman. The school funds are raised through tuition, voluntary contributions, etc. The pupils are recruited entirely from apprentices in the city. Instruction is given only from 7 to 9 o'clock on Monday and Friday evenings.

The school in Danzig was founded about forty years ago by the merchants of the city and receives its funds chiefly through tuition and voluntary contributions. The hours of instruction are the same as those in Königsberg. The classes are attended by about fifty pupils.

The Elbing primary commercial school was founded in 1869. It is attended by about 50 pupils, although attendance is not compulsory. There are two classes, the subjects being the same as those usually taught in such schools.

The school in Thorn consists of four classes, with two teachers.

(k) POMERANIA.

The development of primary commercial schools in Pomerania has been greatly retarded, because no compulsory-attendance laws exist. In addition to this, the schools are all private enterprises, without any State supervision. The schools are located in Stralsund, Stolpe, Colberg, and Lauenburg. The classes are not well attended. On the whole, the merchants of Pomerania do not seem to interest themselves much in these schools.

(l) POSEN.

There are only three primary commercial schools in the whole province of Posen, and these are all located in the city of Posen. They were founded by the merchant organizations of the city, the State having no supervisory control. The class hours are from 8 to 10 every evening in the week, and the schools were attended during the past year by about 150 apprentices. There is no compulsory attendance, and the examinations are held very irregularly.

BAVARIA.

The primary commercial schools in Bavaria to-day are the following: Ansbach, Bayreuth, Gunzenhausen, Ludwigshafen, Nuremberg, Würzburg, Augsburg, Fürth, Kempten, Amberg, Ratisbon, Zweibrücken, Bamberg, Landshut, Munich, and Schweinfurt.

These schools are attended by 3,130 pupils. In comparison with the number of inhabitants, however, the attendance is not large.

SAXONY.

There are more than 50 commercial schools in the Kingdom of Saxony. They are so efficient and widespread that primary commercial classes, for the most part, have been found to be unnecessary. In 1896 there were only three primary commercial schools in Saxony, namely, Leipzig, Oelsnitz, and Waldheim, and a very limited number has since then been established in some of the smaller towns.

WÜRTTEMBERG.

As long ago as 1825 a movement was started in Württemberg to further primary commercial education. Instruction was given in many places on Sunday. In 1854 the plan of giving instruction of evenings instead of on Sunday was introduced. The primary commercial schools in Württemberg to-day are the following: Stuttgart, Ulm, Gmünd, Heilbronn, Esslingen, Ravensburg, Reutlingen, Göppingen, and Biberach.

The school in Stuttgart is independent of any other institution. All the others are connected either with the public schools or with some other institution of learning. Compulsory attendance does not exist, and the apprentices are permitted to attend only before or after business hours. In Stuttgart the hours are from 7 to 9 in the morning in winter and from 6 to 8 in summer; evenings, from 8 to 10 o'clock.

BADEN.

In 1895 there were 13 primary commercial schools with 1,000 pupils in Baden. I have been unable to get a list of these schools. Presumably, however, they are located in Karlsruhe, Heidelberg, Weinheim, Bruchsal, Mannheim, Baden-Baden, Freiburg, Rastatt, Offenburg, etc. Undoubtedly, the number has been increased since that date.

HESSEN.

The primary commercial schools of Hessen were established under very favorable conditions. The law compels every young apprentice, after leaving the public school, to attend a primary commercial school until his 17th year, provided it is his intention to become a merchant or manufacturer. There are at present six such schools in Hessen, located in the six cities which possess chambers of commerce. In other words, these schools are situated only in those cities that have flourishing industries, in which a large number of apprentices are being trained. These schools were founded by the chambers of commerce and are in Bingen, Darmstadt, Giessen, Mainz, Offenbach, and Worms.

MECKLENBURG.

In 1891 the merchants of Güstrow held a meeting for the purpose of discussing ways and means to give their apprentices, especially in retail establishments, a better training in commercial subjects. A primary commercial school was finally established, and other cities of Mecklenburg soon followed suit. These schools are Güstrow, Wismar, Neubrandenburg, Plau, Rostock, Bützow, Malchin, Neukloster, Schwerin, Waren, and Hagenow.

WEIMAR-EISENACH.

In Weimar-Eisenach there are five primary commercial schools, located in Apolda, Weimar, Jena, Ruhla, and Eisenach.

With the exception of the school in Ruhla, they are all private enterprises. Attendance, therefore, is not compulsory.

OLDENBURG.

Oldenburg has but one institution which may be called a primary commercial school. This school is located in Varel, and has but 14 pupils.

BRUNSWICK.

There are 10 primary commercial schools in Brunswick, all of which were founded by merchants and manufacturers interested in giving their apprentices the rudiments of a commercial education. They are located in Brunswick, Königslutter, Schöningen, Schöppenstedt, Blankenburg, Wolfenbüttel, Gandersheim, Holzminden, Helmstedt, and Seesen.

The chamber of commerce in Brunswick was particularly active in the work of organizing these schools.

MEININGEN.

The primary commercial schools of Meiningen are in Meiningen, Poessneck, Sonneberg, Hildburghausen, Saalfeld, and Salzungen. The tuition of the school in Meiningen costs about \$25 a year. The city pays the expense of rent of building, heat, and light. Teachers receive their pay from the tuition collected, as far as it goes. In Saalfeld each pupil must contribute 75 cents, upon his admission, for the benefit of the teachers. A citizen of Saalfeld gives the interest on \$250 for the school library, which is a growing one. When the school was founded, the merchants' union of Saalfeld gave \$80 a year to its support, but as the attendance now is sufficient to meet expenses this stipend has been dropped.

ALTENBURG.

As far as I have been able to learn, there is only one primary commercial school in this little state, and that is in the city of Altenburg. It was founded in 1865 by the merchant organizations of the city. The yearly attendance averages 75 pupils. Expenses are defrayed from tuition, but deficits are made good by merchants and others who are interested in the school. One especially interesting feature of this school is the discipline which governs the apprentices. Some of the laws read thus:

It is expected that every pupil will behave himself properly while in school. The wishes of the director and teachers amount to a command and must be promptly obeyed.

Pupils are not expected to reach the schoolroom earlier than a quarter of an hour before class exercises begin. They must be provided with books and writing material, and must take their seats quietly. Tardiness, unless a good excuse is given, will be punished by extra work. When the teacher enters and leaves the schoolroom, the pupils should rise in token of respect.

Whispering is strictly forbidden.

Pupils must be orderly during the recesses. All noise, yelling and calling, the slamming of doors, and running through the rooms and halls, each and all, are decidedly against the rules. If the school property should be damaged and the offender can not be detected, the whole class will be held responsible.

If a pupil is prevented by illness from attending school, it is the duty of the parents or principal to send in a written excuse to the director some time during the day.

It is expected that every apprentice will carefully observe the time set apart for study at home.

Apprentices are absolutely forbidden to attend dances or to take dancing lessons.

The punishments usually consist of extra work, report of misconduct to principal, public reprimand, and finally expulsion.

COBURG-GOTHA.

The primary commercial schools of this principality are located in Coburg and Gotha. They are thriving institutions and enjoy the protection of the merchant organizations.

ANHALT.

The primary commercial schools of Anhalt are located in Dessau, Cöthen, and Bernsburg.

SCHWARZBURG-SONDERSHAUSEN.

The primary commercial school in Arnstadt was founded in 1882 by the merchant union of the city. About 30 apprentices attend it. The school is a private enterprise without State supervision. Instruction is given by a teacher in the public school and by a merchant in the city. The hours of instruction are, on Mondays, from

7 to 9 o'clock in the evenings; Wednesdays, from 1 to 2 o'clock mid-day and from 7 to 8 in the evenings; Fridays, from 7 to 9 in the evening.

ALSACE-LORRAINE.

When Alsace-Lorraine belonged to France no commercial schools of any character existed. In 1875, Professor Bartholdy* founded a primary commercial school in Strassburg. In the beginning, instruction was only given in the evenings, and, as attendance was not compulsory, the success of the institution was for a long time in doubt. Considerable stress was laid on the French language, and this soon led many of the soldiers of the Strassburg garrison, who were on the lookout for positions in the newly acquired provinces, to attend the evening classes. The result was that apprentices soon stayed away entirely, and the institution to-day has lost its character as a primary commercial school.

The primary commercial schools of Alsace-Lorraine consist of one in Mülhausen and four small ones in Strassburg. They are all under private management.

THE FREE CITIES.

The cities of Hamburg, Bremen, and Lübeck are the gateways through which pass \$2,400,000,000 worth of commerce every year. Naturally, these cities give a good deal of attention to commercial education. Since 1874, the commercial schools of Hamburg have prepared for actual business life 10,150 clerks and apprentices. During the past twenty-five years, Bremen and Lübeck have sent out almost an equal number. The subjects which receive the greatest attention in these schools are: English, French, Spanish, Italian, Danish, Swedish, bookkeeping, stenography, correspondence, commercial arithmetic, and commercial geography. Fully 80 per cent of the pupils study the English language.

NOTES.

A Fortbildungsschule, in the true sense of the term, is a primary commercial school which consists of classes where instruction is given, for the most part, by teachers who are employed at other schools. These teachers receive on an average about \$1 an hour for their services.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *March 21, 1903.*

* This veteran commercial educator has done much toward furthering the founding of commercial schools in Alsace. In 1891, the writer had the pleasure of inspecting his school in Strassburg.

PROPOSED UNIVERSITY FOR HAMBURG.

A general meeting of the most prominent citizens of Hamburg took place recently to discuss ways and means of establishing a university in that city. This will make the twenty-second or twenty-third university in the German Empire. A gentleman in Hamburg, to whom I wrote for information on the subject, says that the chief argument in favor of the scheme is that Hamburg has already such a well-developed system of lectures that a comparatively small enlargement of the present course would bring it up to the standard of a university.

The lectures referred to have been given under the auspices of the "Oberschulbehörde," or higher school authorities, of Hamburg, and embrace the following branches of learning: Theology, law, medicine, philosophy, geography, history, literature, music, art, architecture, mathematics, astronomy, physics, chemistry, mineralogy, zoology, botany, and pharmacy.

The lecturers thus far have been chosen from the most prominent citizens of Hamburg who have distinguished themselves in their respective professions. Many professors from different German universities have also been engaged to give courses on special subjects. It has always been the practice to give the lecture courses gratuitously. Anyone in America desiring further information on the subject should address Die Vorlesungs-Commission der Oberschulbehörde, Hamburg, Germany.

EIBENSTOCK, *March 7, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

PROFITS OF GERMAN INDUSTRIES IN 1902.

The Department has received from Consul T. J. Albert, of Brunswick, Consul Walter Schumann, of Mainz, and Consul H. W. Harris, of Mannheim, statement of the dividends paid by some of the principal industrial undertakings in Germany for the year 1902 as compared with the preceding year. Most of the industries, it is noted, show a falling off in profits. The textile line and the porcelain and glass industry show some improvement, while the chemical industry about holds its own, and upon the whole makes a favorable showing.

The average dividend paid by stock companies in the more important branches of manufacturing in 1901 was 7.98 per cent. In

1902 the same industries paid an average dividend of 6.69 per cent, or a falling off of 1.29 per cent.

The following table shows the figures given for some of the principal industries as carried on by stock companies:

Description.	Average dividend paid in 1901.	Average dividend paid in 1902.
	<i>Per cent.</i>	<i>Per cent.</i>
Porcelain and glass.....	12.93	12.98
Chemical manufacture.....	10.43	10.39
Mining and blast furnace.....	9.66	7.73
Sugar manufacture.....	10.88	7.64
Brewing business.....	9.4	8.86
Textile industry.....	2.91	4.69
Machine manufacture.....	6.13	4.77
Electrical industry.....	5.92	4.13
Cement industry.....	5.24	4.51
Paper industry.....	8.76	8.76
Milling industry.....	3.09	1.47

Mr. Albert adds:

It is generally believed that the turning point in the business depression in Germany has been reached, if not passed. Many corporations which had fallen into financial difficulties have been reorganized and put once more upon a stable foundation.

American orders have been instrumental in reducing the surplus stock of the iron and steel companies. Building enterprises are being undertaken, and there is a demand for construction material. The number of applicants for labor at the Government employment offices has decreased. The passage of the new tariff law has removed an element of uncertainty, and, with the new commercial treaties which are being negotiated, the impression prevails that business will once more assume a normal condition.

TOBACCO INDUSTRY IN GERMANY IN 1902.

The total consumption in Germany for the year 1902 was 80,102 metric tons; the quantity of native tobacco grown was 24,000 metric tons.

The imports and exports were:

Description.	Imports.	Exports.
	<i>Metric tons.*</i>	<i>Metric tons.*</i>
Raw tobacco.....	59,956	1,668
Smoking tobacco.....	542	134
Cigars and cigarettes.....	655	469
Chewing tobacco and snuff.....	53	12

* 1 metric ton = 2,204.6 pounds.

The values of imports and exports for the year were \$31,500,000 and \$1,285,000, respectively.

The source of supply of raw tobacco for the last two calendar years was as follows:

Country.	1901.	1902.
	<i>Metric tons.</i>	<i>Metric tons.</i>
Netherlands.....	26,758	25,709
Brazil.....	10,783	11,741
United States.....	11,508	10,867
Dominican Republic.....	3,836	3,974
Turkey and Greece.....	2,735	3,201
Colombia.....	2,205	2,051
Mexico.....	937	971
Cuba and Porto Rico.....	904	956

The use of cigars or cigarettes is all but universal in Germany. The manufacture of both has become an important industry, the number of those engaged in cigar making in 1902 being about 175,000. This work is largely carried on in villages, instead of in cities. Those who till the soil live for the most part in villages during the winter and make cigars at exceedingly low wages. Thus it happens that the city of Mannheim, which is an important center of the trade, has not a single cigar factory.

The tobacco industry has suffered greatly in the general depression of business. The dominant note of the trade at present may be said to be one of uncertainty.

H. W. HARRIS,
Consul.

MANNHEIM, *March 4, 1903.*

METALLIC TUBING AND TUBE FURNITURE IN GERMANY.

In reply to the inquiry of an Illinois firm (to which advance copy has been sent), Consul-General F. H. Mason writes from Berlin:

The manufacture of tubes and pipes from iron, steel, copper, and other metals and alloys, although of comparatively recent date, is one of the most extensive and highly developed industries of its class in Germany. There were in operation at the close of 1900 seventy-seven manufactories of metallic tubing, some of which—as, for example, Predboeuf et Cie., the Mannesröhrenwerke, and the Röhrenindustrie, all at Düsseldorf—are large establishments with ample resources and equipped with every facility for cheap production on a large scale.

The Mannesmann process for rolling seamless tubes and the Ehrhardt system by which seamless pipes are drawn by forcing a mandrel under hydraulic pressure through a block of metal are both German inventions which have been developed and worked with notable success in this country, while Larson's Swedish process for making steel tubes, the Murphy process, and the Robertson and Elmore patents for making copper and brass tubes are all employed here under the most advantageous circumstances.

The import duty on wrought iron and steel tubing is 5 marks (\$1.19) per 100 kilograms (220 pounds) under the tariff law of January, 1896, now in force, and this rate is advanced in the tariff of December 25, 1902, to 8 marks (\$1.90) for rough and 15 marks (\$3.57) per 100 kilograms for polished or otherwise finished tubing. If the wall of the finished tube is less than 2 millimeters in thickness, the rate under the new tariff will be advanced to 20 marks (\$4.76) per 100 kilograms.

Germany has both an import and an export trade in metallic tubing. The imports in that class during the eleven months ended November 30, 1902, amounted to 9,916 tons, of which 6,396 tons, or about two-thirds of the whole amount, came from the United States, the remaining third being derived from Sweden, Austria, Great Britain, and Belgium. To what special grade, size, or category these imported tubes belonged, or why they should have been imported in face of the vast home production and large export of German-made tubing, can only be conjectured; there is nothing in the official statistics to explain it. But during the same eleven months of 1902, Germany exported iron and steel tubing to the amount of 50,505 tons—more than five times the imports in the same class—which were distributed to nearly every country of Europe and South America, the principal purchasers being:

	Tons.
Switzerland.....	8,382
Holland.....	7,382
Belgium.....	6,144
Russia.....	2,007
Mexico.....	1,618
Brazil.....	1,013

Among the various uses to which iron, steel, and brass tubing are applied in Germany, one of the most modern and important is the manufacture of furniture—especially bedsteads, cot frames, and tables for household, hospital, and military purposes. German science has long been in the front line of discovery and progress in all that relates to sanitary practice, the war against the myriad bacilli of human disease. Tubular metallic bedsteads are not only cheaper, lighter, and more easily flexible than those made of wood,

but they offer no harbor for vermin and lend themselves readily and without injury to disinfection and all the processes of sanitation. For these reasons and because they are cheap, light, and serviceable, the manufacture of tubular bedsteads and other articles of furniture, which began in England and was adopted in Germany hardly a dozen years ago, now employs capital estimated at 15,000,000 marks (\$3,570,000) and from 50,000 to 60,000 operatives. As the industry has developed, there has been a steady progress in the effectiveness of the machinery employed for shaping, cutting, and jointing the parts; soldered joints have given place to screw connections, detachable when desired.

Bedsteads are made either wholly of iron and steel tubing, of the same tipped and decorated with brass and nickered mountings, or wholly of brass tubing, the latter class being, of course, the most decorative and expensive and adapted to luxurious households, hotels, and private sanatoria. When intended for hospitals, iron bedsteads are covered with a waterproof varnish, which protects them from oxidation or injury in cleaning or disinfection.

The manufacture of metallic-tube furniture is distributed over most of Westphalia and the Upper Rhine provinces of Germany, and there are two large and prosperous establishments in Berlin. Each of these manufactories turns out bedsteads, cots, military stretchers, etc., besides washstands, toilets, children's cots, etc., in hundreds of different models and forms, adapted to every location and purse. So cheap are the materials and processes of manufacture that the catalogue prices for the different classes of bedsteads range as follows:

Single iron bedstead:

With plain iron fittings.....	\$1. 19 to \$3. 50
With spiral-spring mattress.....	2. 38 to 6. 00
Iron bedsteads with bronze ornaments and steel-spring mattress....	6. 00 to 24. 00
Brass bedsteads with steel-wire mattress.....	24. 00 to 95. 00

It would hardly seem probable that an industry so widely and fully developed, protected by the costs of transportation and even by a moderate tariff, would leave an import market in Germany for any except the higher and more costly grade of brass furniture, which the English exporters were first to discover and utilize, but which has since been almost wholly recovered by the native German manufacturers.

THE AUTOMOBILE EXPOSITION AT BERLIN.

The National German Automobile Exposition, which was opened with great eclat at the Flora Garden in Charlottenburg on the 8th of March, has just closed. It has been in all respects the most interesting, popular, and successful exhibition of the kind ever held in this country. Not only has the display been representative and up to the best modern standard in respect to quality, but for the first time in Berlin the public has flocked to see it and taken an active personal interest in the vehicles, in the exhibitors, and especially in the throngs of visiting automobile clubs and individual "chauffeurs," who have possessed the streets during the whole period of the exposition. This latest display has suffered less than the several preceding ones from the fact that Berlin, with all its wealth of handsome public buildings, has nothing adapted to a special popular show like an automobile exhibition. The first one, in September 1899, was held in the "Exercier Haus" in Carl Strasse, a military building which was with more or less trouble and expense adapted to the purpose. Then the exhibition went for two years to the centrally located but wholly inadequate quarters of the Permanent Sale Exhibition in Georgen Strasse, under the viaduct of the City Elevated Railway, where it attracted little attention, except from experts, the builders of motor carriages, each of whom showed his latest and best work and studied carefully all improvements exhibited by his neighbors. But the public showed only a languid and perfunctory interest. Few went to see, and fewer still—practically no one—bought anything. They were waiting until builders should achieve something like a standard type of machine and agree substantially as to what it should cost and what it should be able to perform. The exposition of last year showed many promising indications that have this year matured into actual results, which the public has been quick to recognize and appreciate.

This exposition, like those preceding, has been the joint enterprise of the Union of German Motor Carriage Builders and the German Automobile Club, a national organization made up of seventeen clubs located at Strassburg, Bielefeld, Munich, Coblenz, Dresden, Frankfort, Nuremberg, Halle, Hanover, Cologne, Leipzig, Eisenach, Mannheim, Breslau, Aix la Chapelle, and two clubs at Berlin. These include among their members substantially all Germans who are interested in automobilism for purposes of sport and recreation. The Union of German Motor Carriage Builders includes principally the Daimler Company, of Cannstatt and Marienfelde, builders

of the famous "Mercedes" racing machines; Benz & Co., of Mannheim, pioneers in gas-engine vehicles; the Dürkopp Company, of Bielefeld; Adam Apel, of Russelsheim; and the Adler Company, of Frankfurt—all bicycle makers, who have taken over their extensive works into the manufacture of motor carriages since the bicycle industry passed its zenith—the Cudell Company, of Aix la Chapelle; de Dietrich & Co., of Niederbronn; Weiss & Co., of Berlin; the Bergmann Company, of Gaggenau; and a dozen others, besides a large number of makers of pneumatic and other tires, wheels, ignitors, and all the elaborate and varied details of motor-vehicle construction.

The exhibitors numbered this year 115 and are practically all German, the limited space at command of the committee, as well as other economic conditions, having rendered impracticable an international display. Two American machines, the "Oldsmobile" and the "Locomobile of America," were exhibited by the German firms at Hamburg and Berlin, respectively, which have within the past three months taken over the general agency for these representative types of vehicles in this country. In the same way, the French Dion-Bouton carriages were exhibited by the Berlin agents; but with these exceptions the exhibition was distinctively German, and as such gave an exact key to the present status of the industry in this country.

The unprecedented success of this year's exhibition has been due to a combination of fortuitous circumstances. For one thing, the clouds of industrial and financial depression which have overhung the Empire during the past two years have finally begun to lift, and the spring opens with fairer prospects and brightening skies. During the past year the Emperor and the whole military department of the Government have become greatly interested in motor vehicles for army purposes. Prince Henry of Prussia has become a devoted automobilist; he has made a memorable tour across the country in an American locomobile, and personally opened the exposition as the representative of the Emperor, who was absent from the city, but came a day or two afterwards and spent several hours examining critically every notable feature of the display. Moreover, the weather throughout the whole fortnight of the exposition was favorable, and the location, which it was feared would prove too remote for popular success, turned out to be a decisive advantage.

For want of a better and more conveniently located building, the exhibition had been established in the "Flora," a large suburban music-garden restaurant in Charlottenburg, nearly 3 miles westward from the Brandenburg gate, and approached by a broad, asphalt-paved boulevard, which formed an ideal exercise course for the throng of visiting automobilists who had assembled at the opening

of the show to the number of 300, representing every automobile club in Germany, and took part in a brilliant illuminated parade, which, on the night of March 8, came in through the Thiergarten, along the Linden, and was reviewed before the imperial castle. Nothing like this had ever been seen in Berlin before, and thenceforward the automobile, as an institution, seemed to take on a new dignity and character. The limit of speed within city limits is fixed by regulations at 12 kilometers (7.3 miles) an hour, but during the past fortnight motor carriages of all types and dimensions, bearing the labels of clubs belonging to the national association, have whizzed along the boulevard, between the Brandenburg gate and the Flora, at double or treble the prescribed pace, and the police, for once in their lives, have closed their eyes.

The distinctive feature of the exposition of this year, the point which can not fail to impress the most casual observer, is the uniformity with which the latest and best work of all the great German builders conforms to two or three standard types. Last year, and especially two years ago, there were several conspicuous novelties, as for instance the combined benzine and electric motor carriages, with which ambitious inventors were seeking to create wholly new types and find success by original and untrodden paths. Motors were of many kinds; some were carried forward, some behind, and others under the center of the vehicle. There was a nearly even number of electrical and gasoline motors, with steam as a promising third in the race. This year nine-tenths of all the vehicles exhibited have hydrocarbon motors, and, excepting the two American carriages of the "runabout" class, the whole display conformed so closely to established types that from the model alone a visitor could hardly decide whether it was in Berlin, Paris, London, or New York. With scarcely an exception, the vehicles, whether "tonneau," phaeton, victoria, coupé, or "break," all carry the motor in front, high above the axle, and covered with a movable shield, which protects the working parts while rendering them instantly accessible for observation or repair. Everywhere simplicity of construction, directness of action, and economy of power have been studied and striven for as the essential requisites. The success of the Daimler "Mercedes" has fixed the form and general principles of construction, not only for racing machines, but for all the larger classes of touring and pleasure automobiles in this country.

Among the novelties in details were several kinds of rubber tires with steel shoes or soles for the purpose of preventing wear on rough, and slipping on smooth, roads, and there were several improvements in ignitors for gasoline motors, which attracted the earnest attention of experts.

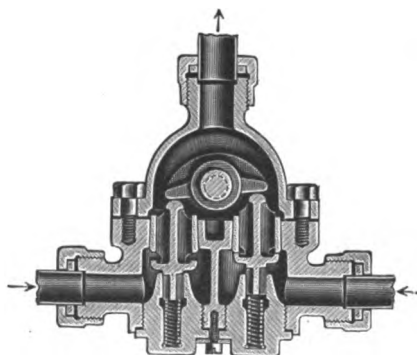
The German automobile industry started with the advantage of a leading position in all that relates to hydrocarbon motors—for Otto, Daimler, and Benz are all German names—and besides this there were several bicycle firms with large plants and hosts of trained workmen ready to embark promptly and effectively in the new branch of manufacture. It has now reached a point at which it supplies not only most of the home demand, but produces a surplus for export, and several of the German makers have already an important market in Great Britain, Belgium, Russia, and Austria-Hungary. One of the topics discussed at the recent exposition was the organization of a cartel or syndicate among the leading manufacturers to promote and harmonize their interests in respect to foreign trade, and it is probable that a representative display will be made by them next year at St. Louis.

BERLIN, *March 23, 1903.*

FRANK H. MASON,
Consul-General.

GERMAN APPARATUS TO DRAW WATER FROM CYLINDERS.

The accompanying figure shows an apparatus which has been invented by the firm of Schneider & Helmecke, Magdeburg, Germany, for the purpose of drawing condensed water from the cylinders of steam engines. The illustration shows the interior of the apparatus and how the water is drawn off while the engine is in



action. The advantages of this invention are that the water is removed from the cylinders without any waste of steam and without the opening of valves and doors. As the apparatus works automatically, it is unnecessary for the engineer to keep watch of it. Its success in Germany has been marked. Those interested should apply to the above address.

EIBENSTOCK, *March 18, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

GERMAN FIRE EXTINGUISHER.

An engineer of Munich, Mr. Max Eberhardt, yesterday gave a demonstration of the effectiveness of a new preparation for extinguishing fires. The trials, it is reported, were successful. The preparation is a liquid of a milky color. The first experiment showed that the skin when painted with the liquid becomes insensible to heat. Rags saturated with petroleum can be burned upon the hand after it has been immersed in the liquid. Small fires can be extinguished with the hands, and with one pailful of the liquid a fire in a pit of tar was put out in one second. The tar, even after petroleum had been poured over it, could not be again ignited, as the liquid formed a thin, unmeltable crust which completely shut out oxygen.

In the fourth experiment, a pile of wood several yards in height and width was ignited until it was in full blast. The fire was completely extinguished in twelve seconds with a little more than 12 gallons of the liquid.

Small quantities of the preparation are sufficient for extinguishing purposes, so that the damages produced by water are avoided.

The price of the liquid is about 0.75 cent per quart. The trial took place in the presence of the chiefs of the fire department and representatives of the city council and board of public works.

FRANKFORT, *April 3, 1903.*

RICHARD GUENTHER,
Consul-General.

AGRICULTURAL IMPLEMENTS IN SOUTH GERMANY.

Not only are American mowers, harvesters, and hayrakes in use in all the farming districts of South Germany, but our smaller agricultural implements, such as forks, garden and lawn rakes, hoes, shovels, spades, and hand potato diggers, have also rapidly grown in favor and are now on sale in nearly every local hardware store. The lighter construction and better shape of American tools are conceded; and here in Germany, where so much of the farm work is done by hand, these articles should continue to find a ready market.

I have never seen in this district any of the convenient apparatus commonly employed in the United States for spraying fruit trees, vines, and other vegetation. The sprayers in use are primitive in construction, consisting essentially of a watering can, with hose and

nozzle attached, carried by the operator, the weight of the water furnishing the pressure. American spraying pumps and other similar apparatus should be in demand.

As is well known, Germany produces vast quantities of potatoes and is coming more and more to depend upon this crop. They are frequently grown over large areas and are for the most part planted and dug by hand, the latter operation being assisted by means of an ordinary plow. An American engaged in selling harvesters in Germany informs me that he has had several inquiries as to the prices and efficiency of the potato planters and diggers used in the United States. He is of the opinion that in some of the territory over which he has traveled, American planters and diggers, drawn by horses, could probably be sold in paying quantities.

The same gentleman says that he has had frequent inquiries as to windmills for pumping water and operating small feed grinders. Such windmills are rarely seen in this part of Germany. In view of the fact that most of the farmers live in villages, it is not probable that the mills would come into such general use as in most parts of the United States. The field, however, would seem to invite the attention of manufacturers who have agencies for these mills in other parts of Europe.

Weighing scales of the convenient forms employed in warehouses, freight houses, groceries, mills, etc., are not in use here. In this class of appliances there would seem to be an opening for our manufacturers.

In making tools and implements for the German trade, it should not be forgotten that durability is a greater virtue in Germany than it is in the United States. Tools frequently go into unskillful hands, and a degree of heaviness is not so objectionable as are breakage and need of frequent repairs. The wood used in handles should be well selected and the parts subjected to special strain made strong.

H. W. HARRIS,

MANNHEIM, *March 19, 1903.*

Consul.

TRADE CONDITIONS IN WURTTEMBERG.

Notwithstanding the prevailing commercial depression, 1902 showed a slight improvement over the preceding year, in that many factories which were obliged to curtail greatly their force in 1901 have reemployed the workmen and striven sturdily to maintain a fitting place in the world of trade. With a rising market for raw materials and a falling market for their products, the lot of the German manufacturer has, generally speaking, been a troubled one. It

will probably be some time before confidence is restored. There seems to be a general feeling of doubt regarding the effects of the new tariff law.

MUSICAL INSTRUMENTS.

The chief musical instrument exported from Wurttemberg is the harmonica, which is sold in greater quantities in the United States than in any other country. There are several large factories in neighboring smaller towns. One concern has one main factory and 15 branches in which are employed 1,500 hands. Much of the work is done at home by the employees. The annual output of this one concern has for several years past been about 5,000,000 harmonicas. Competition in this line is extremely keen and goods are often sold for unusually small profits in order to hold the trade. The firms ship direct to all their customers in nearly every country in the world. It is said that the harmonica manufacturers intend to send an exhibit to the St. Louis Exhibition.

The piano industry.—The piano industry of Stuttgart, so well known in Europe, has been less satisfactory than in former years, exports decreasing about 400 tons; but, nevertheless, the three large firms here had enough work to keep their mills going full time. The loss of trade by this industry was felt more in northern Germany than in Wurttemberg. In fact, one local firm reports that it did more business last year than ever before, and trade was better in both the domestic and foreign markets. In Russia, Spain, Central and South America, and South Africa business was bad, but later the outlook for Mexico improved. No pianos are sold to the United States, on account of the high tariff, but there is keen competition with American manufacturers in Mexico and Central and South America.

The exports of pianos during the last three years were:

	Tons.
1900.....	12, 185. 2
1901.....	12, 706. 5
1902.....	12, 324. 7

SURGICAL INSTRUMENTS.

This is quite an industry in this district, and one of the largest surgical-instrument factories in the world is located here. It produces over 20,000 different instruments for human and animal surgery. While the trade has shown considerable improvement over that of the past two years, profits have been much curtailed by aggressive competition and increased cost of raw material. The outlook for 1903 is believed to be very good, except for business with the United States, where the tariff, it is said, prohibits increased trade.

FURNITURE.

The manufacture of fine furniture is one of the chief industries of Stuttgart. The cheaper grades are also made here and in many of the small towns of the Kingdom.

A fair is held here every May and December, where cheap hand-made furniture is exhibited, made chiefly by the small manufacturers in the towns. This kind of furniture is neither as cheap nor as comely as that of the same grade made in the United States, and there appears to be a field here for American goods of this class, if it is properly cultivated. There is no furniture of any kind sent from Wurttemberg to the United States. Some English furniture of good quality is sold here. The trade in general shows a very marked improvement, and the outlook is good.

American office furniture is on sale in Stuttgart, but our manufacturers fail to seize the opportunity to push their goods and frequently allow the Germans, with their goods made closely after American patterns, to get ahead of them in the field of active competition. The result is that domestic imitations of nearly all office furniture are at least as well established as the genuine American articles. They do not have quite the fine appearance of the goods which come from the United States, but customers do not seem to be as critical here as elsewhere; and, besides, the fact that an article is of German manufacture often appeals to the buyer more strongly than does superiority of finish and form. Patriotism is not to be lost sight of in international trading.

AMERICAN TOOLS AND MACHINERY.

About the only American tools sold in this district are those found chiefly in iron foundries and large machine shops. Our agricultural machinery, owing to the smallness of the farms, has little demand.

American small tools are not pushed in this market; but American novelties and kitchen utensils are well liked and are in good demand. They are bought chiefly in Hamburg.

A factory supplied entirely with American machinery for making broom and brush handles has within the past three months been established by American capital in a village in this district. I am informed that it already has on hand contracts for the entire year's output.

DRY GOODS.

Business in this line in the past year has improved. Unfortunately, however, Americans are not offering their goods in this market. Dealers here inform me that they could find plenty of trade for American goods, if our manufacturers would seriously

compete for business and quote prices with freight and duty paid. By a generous distribution of dry-goods journals I have succeeded, during the past year, in arousing interest in American styles and manufactures. Several of the largest German shops have subscribed to some of these periodicals.

English and French importations are decreasing yearly, as German manufacturers are learning to imitate, in a more or less satisfactory manner, the articles heretofore purchased in large quantities from these countries. American thread and silks should be sold here, but do not seem to be offered steadily.

TOYS.

Business in this line was satisfactory—considerably better than in 1901. Prices for raw materials reached the normal and were steady. Profits were consequently greater than in former years, when prices fluctuated wildly. Even the home market has been good; but manufacturers prefer to have a few first-class customers in the United States and to keep them well supplied, rather than to increase their sales to uncertain buyers. Competition is increasing and buyers require longer terms for payment. In the United States and Germany, the demand is growing for complicated toys of a novel character. The outlook is good.

AMERICAN SHOES.

Neglect of this market continues. A few shoes of American make are sold to those who especially want them, but there is no effort to push their sale. One or two dealers handle them, but more for the purpose of exploiting the imitation German foot wear than for regular sale. The German manufacturer more nearly each year reaches the finish and general appearance of the American shoe. He has not arrived at the goal yet, but is well on the way, and his success so far is due in part to the failure of the American manufacturer to push his trade in this country. There is still time for him to enter this market seriously, but he should do it at once. I am told that there are fewer American shoes sold now than in the past few years; but this is not to be wondered at, as absolutely no effort is made, in this district at least, to do anything toward capturing the fine trade that certainly exists for those who have the enterprise to work it up.

BICYCLES.

There is one large manufactory in this district that employs about 500 hands. It reports a very satisfactory business—an increase of 25 per cent over last year. Competition on the part of American wheels is decreasing steadily, owing to the fact that a few years ago numbers

of cheap American machines were thrown upon this market. They proved most unsatisfactory. As a result, people lost confidence in them, and, with the exception of a few of high grade, which still find a limited sale, there are no American bicycles now sold in this district.

JEWELRY.

The manufacturers of jewelry in this district have only recently begun to turn their attention to the United States as a field of export, although the neighboring country of Baden has for many years sold largely not only to the United States, but also to Porto Rico and Cuba.

About six months ago, a large manufacturer of jewelry in this district sent a member of the firm to the United States to study the market. He took along with him a fine line of samples and succeeded in selling about \$6,000 worth of goods. He considers these sales as merely sample orders, and expects to do a very satisfactory business in the near future. The firm has come to the conclusion that there is no market in the United States for cheap German jewelry, as the manufacturers there have better machinery; but on the other hand, it believes that the American manufacturer of jewelry can not compete with the European in the markets of Europe. This firm expects to sell the finer grades in the United States, and realizes that it can be successful only by closely studying American tastes and conforming to American ways of doing business.

Both the English and the domestic market have been dull in the last twelve months, and no great revival is expected for this year. It is thought, however, that the worst is over and trade will gradually recover. The orders received late in the autumn indicate that the feeling is better.

LEATHER.

About the only leather exported from this district is that used for rollers in large printing presses. This industry increased its exports to the United States nearly 40 per cent last year.

The manufacturers of high-grade sole and belt leather report that business has been unsatisfactory, owing to a rise in the price of raw material, especially in the latter half of the year. The outlook is said to be gloomy.

WATCHMEN'S DETECTORS.

The business is in the hands of one firm, which exports largely to the United States, nearly every State in the Union supplying customers for this product. The export trade with America increased about 20 per cent and its outlook for the future is bright.

CARBOLINEUM.

Carbolineum, a patent wood preserver, is manufactured largely in this district and exported to many parts of the United States, particularly the West and South. There is also a good business with England. The trade, particularly in the domestic market, has been unsatisfactory in the last year and the outlook is not promising.

MACHINE NEEDLES.

This industry, after a lapse of several years, has again made its appearance in the trade with America. No needles of the cheaper grades, however, can be exported from here with profit, as American manufacturers can produce them at less cost. It is the high-priced article that meets with keen competition from this country, and local manufacturers did a most satisfactory business last year. The outlook for future trade is good.

Manufacturers claim to have not only the very latest machinery for producing needles, but also cheap labor. Knitting-machine needles are now quoted here at an average of 28 marks (\$6.66) per thousand, and round stool needles at 6 marks (\$1.43).

EDWARD H. OZMUN,

STUTTGART, *March 14, 1903.*

Consul.

FOREIGN HOUSES IN CHEMNITZ.

The Allgemeine Zeitung, of Chemnitz, March 10, 1903, published the following:

For many years in the past, foreign houses connected with the import textile trade have maintained permanent offices in Chemnitz, but of late so many new offices have been opened in the city that it will be of interest to inquire into the reason. Local exporters, of course, look with disfavor upon the increasing number of foreign agents. Attempts have also been made to put obstacles in their path by stringently enforcing the local tax laws against them; but little was accomplished in this way, as the houses either located elsewhere or ordered their representatives to register their place of business under their own names instead of in the name of their firm, thereby avoiding the payment of all taxes save those on the immediate income of the representative. Originally, only American houses maintained agents here, but lately other markets have come to be represented in the same way. Let us confine our attention for the present solely to the representatives of American houses.

At first, only three or four of the largest houses had their offices here. From their headquarters at Chemnitz, orders were sent to the various industrial centers and instructions issued respecting the delivery of goods; but with the enforcement of the last United States tariff, an additional reason was presented for the establishment of foreign branch houses in Chemnitz. The new duties were so high, and the class schedule incorporated in the tariff offered so tempting an invitation to the false declaration of goods, that many houses could not resist the opportunity.

The New York customs authorities presently unearthed these practices and made an end of them. As a result, a number of offices in Chemnitz, as well as in other parts of Germany, had to be closed down, and the opinion prevailed that within a short time the last of the American houses would have to give up their branches in the city; but instead of this, the number of offices suddenly increased. It was found that they were buying the goods in the rough from the factors. These were sent to Hermsdorf to be dyed, and then made up by expert finishers and packers. Obviously, these goods were considerably cheaper than similar qualities bought from the large Chemnitz exporters. Nothing was more disagreeable to the local export firms than to see the people who had originally delivered goods to them dealing directly with their own customers. A large number of Chemnitz houses then erected branches in the United States and dealt directly with the retailers.

But a further reason prompted the American importers to establish offices in the city. When a large importing house buys all sorts of articles, and buys the same class from many different manufacturers, there will be a large number of invoices to legalize. Every legalization costs, as is well known, 10.60 marks (\$2.52), which expense is borne by the buyer. If a representative can collect all the different invoices intended for a single shipment and put them up in a single invoice, a considerable saving can be effected for the house, which in some cases probably amounts to more than the expense of maintaining an office.

Above all things, it was of importance to the American importer to have full knowledge of the condition of the market, so that he might deal out his orders accordingly.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *March 20, 1903.*

NEW DANISH STEAMSHIP.

Hellig Olav is the name of a new steamship which left this port to-day for New York, via Christiania and Christiansand, on its first trip. It was built by Alexander Stephen & Sons, of Scotland, for the United Steamship Company, of Copenhagen. The gross tonnage is 10,084 and the net tonnage 6,060. It is a sister ship of the new steamer *Oscar II*, owned by the same company, and of the *United States*, which will sail on its first trip in June of this year.

The construction of these three modern steamships for service between our ports and Scandinavia should attract the attention of American exporters to the fact that Copenhagen is destined to become more and more a distributing center for American goods.

The company which owns the three boats operates extensively in the Baltic and distributes most of our goods that are sent via Copenhagen for Baltic ports. Our exporters should study the situation in North Central Europe and note the unique commercial position occupied by Copenhagen. Denmark alone has in recent years taken goods from the United States to the value of from \$16,000,000 to \$20,000,000, but she should serve us in a much larger capacity as a medium for the introduction and sale of American products in other countries. The shipping facilities are at hand, and, what is quite

as important, intelligent men, who speak several languages, are also available, prepared to engage in the work of building up and maintaining American commerce in the Baltic.

RAYMOND R. FRAZIER,

COPENHAGEN, *March 25, 1903.*

Consul.

DEMAND FOR STEEL CASTINGS IN IRELAND.

From recent investigations that I have made, and from numerous inquiries received from different firms in this city, I am satisfied that a good market is open to American manufacturers who can supply steel castings of high permeability for electrical works. Castings of magnetic steel, for field magnets of electric motors and dynamos, and magnetic steel or iron-sheet stampings, of high permeability and low hysteresis, for armature cores, are mentioned. L. B. Mollan & Co., Alexander street West, Falls Road, electrical and mechanical engineers and contractors, and Millin & Co., Ultonia Works, 59 Victoria street, are desirous that their names may be brought to the attention of steel manufacturers of the United States, as they are large users of the castings described.

For the benefit of possible shippers, I will say that two lines of ocean steamers run direct from the United States to Belfast, Ireland—the Lord Line from Baltimore and Newport News and the Head Line from New Orleans.

WILLIAM W. TOUVELLE,

BELFAST, *March 11, 1903.*

Consul.

COAL, STEEL, AND IRON PRODUCTION OF FRANCE IN 1902.

Statistics of the production of coal, steel, and iron in France during 1901 and 1902 have recently been published by the Minister of Public Works. The figures of the former year have been corrected and are definite; those for 1902 are provisional, but sufficiently accurate for comparison.

COAL.

The production of anthracite and bituminous coal in France in 1902 was 29,574,130 metric tons,* a decrease of 2,059,458 tons as compared with the previous year, or a little over 7 per cent. With the exception of the Departments of Saône-et-Loire, Nièvre, Allier, and Puy-de-Dôme, in which there was an increased coal production, all the coal-producing Departments of France showed a decrease in the output.

* 1 ton = 1,000 kilograms, or 2,204.6 pounds.

The production of lignite in 1902 was 622,864 metric tons, a decrease of 68,850 tons as compared with 1901. Most of the lignite mined in France comes from the Provence coal basin, which is formed by the Departments of Bouches-du-Rhône, Var, and Basses-Alpes.

The total production of mineral combustibles in France for 1902 was 30,196,994 tons, as compared with 32,325,302 tons in 1901, a decrease of 2,128,308 tons.

The above figures are grouped in the following table:

Production of coal and lignite in France for the years 1901 and 1902.

Description.	1901.	1902.	Decrease.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Anthracite and bituminous.....	31,633,588	29,574,130	2,059,458
Lignite.....	691,714	622,864	68,850
Total.....	32,325,302	30,196,994	2,128,308

The imports, exports, and consumption of coal in France during 1901 and 1902 were as follows:

Description.	1901.	1902.
	<i>Tons.</i>	<i>Tons.</i>
Stock in Government warehouses January 1.....	195,499	198,542
Imports of coal, coke, and briquettes (commerce général).....	15,206,477	15,023,350
Production of coal and lignite.....	32,325,302	30,196,994
Total.....	47,727,278	45,418,886
Exports of coal, coke, and briquettes (commerce général).....	2,171,583	2,350,400
Balance.....	45,554,695	43,068,486
Stock in Government warehouses at the end of December.....	198,542	225,865
Consumption.....	45,357,153	42,842,621
Decrease.....		2,514,532

From the above it will be seen that the estimated consumption of coal, briquettes, and coke in France during 1902 was 42,842,621 tons, being 2,514,532 tons less than in 1901.

The falling off in the production of coal in 1902 was due to the prolonged strikes which took place in the great mining regions of France, in the Departments of the Nord, Pas-de-Calais, and Loire, and to the decreased demands for consumption owing to the unfavorable condition of the French metallurgical and other industries.

GERMAN COAL IN HAVRE.

The imports of coal in 1902 from the countries from which France derives her foreign supplies all indicate a falling off as compared with 1901, with the exception of those from Germany, which were greater, being 1,029,520 tons, against 782,466 tons in 1901, an increase of 247,054 tons, or 31 per cent.

The imports from the United States fell from 235,436 tons in 1901 to 43,400 tons in 1902.

The introduction of German coal into the Havre market was mentioned in the annual report of this consulate, dated October 30, 1902,* since which time cargoes of the German combustible have been received regularly, principally to fill existing contracts. The following article appeared in the English trade journal *Coal and Iron*, under the date of March 16 last:

It is officially stated that during the last six months of 1902, 34,720 tons of German coal were imported by sea from Rotterdam to Havre, Caen, Dieppe, and Rouen; and it is said that important contracts have been made for 1903 for the supply of German coal to Havre, Caen, Rouen, Cherbourg, and St. Malo. These contracts at Havre alone will make a difference of from 80,000 to 100,000 tons in the French imports of British coal during the current year.

In the opinion of the local coal importers with whom I have conversed upon the subject, the receipts of German coal during 1903 at Havre and other channel ports will decrease and in time may cease entirely if the present prices of British coal and the freights from the British coal-shipping ports are not greatly increased. The German coal miners and shippers, however, are desirous of having outlets for their product in the northern ports of France, and will not abandon the trade they have already established without a struggle. The question is whether they will be able to meet the competition of British coal. There is but little difference in the ruling prices of the German and British coal, but the former is very friable. In consequence of the two handlings it receives before it is shipped from Rotterdam, it arrives at Havre with a very small percentage of large pieces, which is a great objection in the eyes of the French dealers, even if the coal produces good results when consumed.

IRON.

The production of pig iron in France during 1902 was 2,427,427 tons, an increase of 38,604 tons as compared with 1901, as shown in the following table:

Production of pig iron in France during 1901 and 1902.

Description.	1901.	1902.	Increase.	Decrease.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Refined iron.....	1,812,062	2,012,232	200,170	.....
Foundry iron (first fusion).....	576,761	415,195	.....	161,566
Total	2,388,823	2,427,427	38,604	.....

The principal centers of production were the Department of Meurthe-et-Moselle, with 1,547,928 tons; Nord, with 234,000 tons; Saône-et-Loire, with 85,054 tons; Pas-de-Calais, with 85,041 tons; Landes, with 67,662 tons; and Gard, with 67,317 tons.

*Printed in *Commercial Relations*, 1902, Vol. II.

There were 625,826 tons of manufactured iron produced in France during 1902, an increase of 58,671 tons as compared with 1901. Of the total output there were 320 tons of iron rails, 572,541 tons of commercial iron, and 52,965 tons of sheet iron.

The details of the iron production in 1902 and the comparison with 1901 are shown in the following table:

Production of iron rails, sheet iron, etc., in 1901 and 1902.

Process of manufacture.	1901.			1902.		
	Rails.	Commercial iron.	Sheet iron.	Rails.	Commercial iron.	Sheet iron.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Puddled.....	216	315,282	32,300	320	357,867	43,085
Charcoal refined.....		4,351	1,106		4,532	1,048
Scrap iron.....		204,670	9,230		210,142	8,832
Total.....	216	524,303	42,636	320	572,541	52,965
Increase in 1902.....				104	48,238	10,329

The Department of the Nord leads in the production of manufactured iron, with 236,382 tons. Then follow the Departments of Ardennes, with 81,216 tons; Haute Marne, with 62,326 tons; Seine, with 38,780 tons; Meurthe-en-Moselle, with 35,579 tons; and Saône-et-Loire, with 28,575 tons—the rest of the output being distributed among 31 other Departments.

STEEL.

The production of steel in France in 1902 was 1,231,652 tons, as compared with 1,175,454 tons in 1901, an increase of 56,198 tons. There were 301,434 tons of steel rails produced, an increase of 9,906 tons over 1901; 653,931 tons of commercial steel, an increase of 39,913 tons; and 276,287 tons of sheet steel, an increase of 6,739 tons.

The details of the steel output are shown in the following table:

Steel production of France during 1901 and 1902.

Process of manufacture.	1901.			1902.		
	Rails.	Commercial steel.	Sheet steel.	Rails.	Commercial steel.	Sheet steel.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bessemer.....	266,967	352,056	77,174	273,153	335,363	74,298
Siemens-Martin.....	24,561	241,268	190,964	28,281	289,006	200,121
Puddled or forged.....		5,026	170		11,287	754
Cemented.....		1,084			990	5
Crucible.....		12,841	78		12,508	117
From scrap steel.....		1,743	1,522		4,678	992
Total.....	291,528	614,018	269,908	301,434	653,931	276,287
Increase in 1902.....				9,906	39,913	6,379

The production of Bessemer and Siemens-Martin ingots in 1902 was 1,635,300 tons, against 1,425,351 tons in 1901, an increase of 209,949 tons.

In the following table is shown the Departments in which the greater part of the steel output was produced:

Department.	Rails.	Commer- cial steel.	Sheet steel.	Total.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Meurthe-et-Moselle.....	117,575	180,028	28,186	325,789
Nord.....	66,750	105,800	82,900	255,450
Saône-et-Loire.....	1,594	49,264	40,956	91,814
Loire.....	24	42,877	21,276	64,177
Loire Inférieure.....	24,512	11,251	18,748	54,511
Pas-de-Calais.....	20,741	32,636	.....	53,377
Gard.....	38,939	12,795	.....	51,734
Allier.....	.....	47,089	3,929	51,018
Landes.....	30,155	17,887	.....	48,042
Ardennes.....	.....	25,044	22,779	47,823

A. M. THACKARA,

HAVRE, *March 19, 1903.*

Consul.

ALCOHOL FROM ACETYLENE IN FRANCE.

Consul J. C. Covert writes from Lyons, March 10, 1903:

The Journal Officiel, of Paris, publishes in its number of March 4, 1903, in a report of the proceedings of the National Agricultural Society, that a new means has been discovered of producing alcohol. As a result of experiments made some years ago by Mr. Berthelot, in the chemical analysis of alcohol, efforts have been made to perfect and simplify the proceedings that he had indicated, and it now appears that chemical alcohol can be made from carbure of calcium and its product acetylene at from 20 to 25 francs per hectoliter (\$3.86 to \$4.82 per 26.417 gallons), and even for 12 francs (\$2.32), the alcohol to be of 100°.

Mr. Jules Benard, who read the paper on this subject, said in conclusion:

If this discovery proves practical, we may ask, What will become of the producers of alcohol from wine, beets, grain, and molasses?

The following has also been received from Consul Haynes, of Rouen:

Propos of a former report from this office on the manufacture of alcohol by synthesis,* it may be well to add that a molecule of

*See ADVANCE SHEETS No. 1492 (November 17, 1902).

alcohol is composed of two atoms of carbon, six of hydrogen, and one of oxygen; so synthetical alcohol is obtained by uniting these atoms accordingly.

For a long time it has been known that by the direct combination of carbon and hydrogen in the electric arc acetylene can be obtained. Sufficient hydrogen must be added to the acetylene to produce ethylene, a constituent of illuminating gas. In combining water with the ethylene, alcohol is obtained. Thus, alcohol has already been produced in France without the employment of vegetable matter.

In contact with water 100 kilograms (220.46 pounds) of carburet of calcium give about 30 cubic meters (1,059 cubic feet) of acetylene, weighing nearly 35 kilograms (77.16 pounds). Upon hydrogenation this produces 37 kilograms (81.57 pounds) of ethylene, which after hydration forms 22.4 gallons of alcohol at 98°. Thus, to have 100 liters (105 quarts) of alcohol it is necessary to employ at the beginning 117 kilograms (258 pounds) of the carburet, the net cost of production of which is, in France, 23 francs (\$4.44).

The manufacturers of carburet of calcium usually sell their product in this country for 30 francs (\$5.79) per 100 kilograms (220 pounds), some 10 francs (\$1.93) more than the actual cost of production. Therefore, the estimate of the cost of alcohol made by employing the carburet is about 40 francs (\$7.72), a figure not differing greatly from that of alcohol from vegetable matter, which costs \$5.79 per 220 pounds. Some claim, however, that the new product can be manufactured at some future time for 12 francs (\$2.32) per hectoliter (26.417 gallons).

Parties desiring communication with those making experiments in this line should address E. Silz, Secrétaire Général d'Association des Chimistes, 156 Boulevard de Magenta, Paris.

FRENCH MARKET FOR HORSESHOE NAILS.

Norway and Sweden export annually to France horseshoe nails to a total value of several million francs. The exporters' system of handling this business is as follows: In several of the principal cities they have established agencies, to which they send occasional large shipments of horseshoe nails on consignment. The exporters themselves prepay the freight to the port of entry, but their agents pay the customs duties and the freight to the interior for the account of the manufacturer. The consignee then sells the goods wherever he can, frequently employing commercial travelers, and makes monthly or quarterly settlements with the manufacturer. Nails of all sizes

are sent, and the advantage of this system, according to the French view, is that with the merchandise always on hand orders may be promptly filled.

Horseshoe nails command an average price of 75 francs (\$14.47) per 100 kilograms (220 pounds). The duty is 20 francs (\$3.86) per 100 kilograms. This would leave for the manufacturer a net price of 55 francs (\$10.61) per 100 kilograms, out of which all charges, including the consignee's commission, must be paid.

Certain exporting firms of Norway and Sweden have agencies and depots for merchandise at Paris, Bordeaux, Lyons, and St. Etienne, but no two firms are represented in the same city. American horseshoe nails are undoubtedly better and less clumsy than the Swedish article and ought to command an excellent sale in France if the prices and charges above indicated can be met.

I know an active man at Angers, a big and thriving town of this consular district, who would like very much to represent an American house under the conditions set forth; and if the matter should interest any of our manufacturers, it would afford me pleasure to put them in communication with the agent in question.

BENJ. H. RIDGELY,

NANTES, *March 7, 1903.*

Consul.

MANUFACTURE OF FIREARMS IN FRANCE.

The number of sporting guns of divers sizes and models turned out by the important manufactories of St. Etienne is annually increasing, the production for 1902 being considerably in excess of that of the preceding year.

According to the official figures published recently by the Chamber of Commerce of St. Etienne, the number of gun barrels in an unfinished state presented to the proving house was 103,172 in 1902, of which 1,538 were rejected at the first trial and 3,101 at the second. The remainder received the proof stamp, showing an increase of 26,210 over the preceding year. The great majority of the barrels were made of steel, the rest comprising ordinary guns, pistols, revolvers, etc. There were 269 cannon to be used against hailstorms.

At no other epoch in the history of the industry of St. Etienne were such favorable results reported, and the increase of production coincided with the enlarged use of pyroxylin powder. The value of sporting guns has likewise increased; the arms are better finished and command higher prices.

On the other hand, the national manufacture of arms is going through a crisis and many skilled workmen have been given a

month's notice, the Government orders not being sufficient to employ as large a number as formerly. This is the situation not only at St. Etienne, but at Government factories located in other parts of France. These establishments are at the disadvantage of being limited to one single product, viz, military arms, while the manufactories supported by private capital can engage also in making sportsmen's supplies, such as bicycles, gun tools and novelties, gun cases, trunks and valises, lanterns, cutlery, fishing rods, reels, and paraphernalia, swords, games, etc. Thus they are able to divert their energies to meet demands in various branches of the trade, according to changes of fashion or popular whims.

In reference to recent inquiries on this subject, it may be stated that French patterns of sporting guns are not well known in the United States, though we buy enormous quantities from Belgium.

Foreign-made barrels bear Government proof marks as a guaranty of the safety of the arm, and the dealer, in selling, usually lays stress on this point. A large, new proof house has been recently constructed at St. Etienne, equipped with the best modern devices for testing the guns made in this vicinity.

ST. ETIENNE, *March 25, 1903.*

HILARY S. BRUNOT,
Consul.

INDUSTRIAL AND AGRICULTURAL EXHIBITION AT LIMOGES.

An exhibition will be held at Limoges from May to November, 1903, to display the industrial, agricultural, and artistic work of this part of the country and France in general, and also to show to the exporters and importers of the world the products and needs of this locality.

This is the first exhibition of its kind that has been held in central France for many years. Few foreigners visit Limoges. It is a city of about 90,000 inhabitants and is known to the United States chiefly through its ceramic industry, which is the most important in all France.

To certain American exporters, this exhibition offers a valuable opportunity—the city being the center of a large agricultural region—to display farm machinery and implements, dairy machinery, etc. Carriage, shoe, leather, and harness manufacturers and dealers might also find it to their advantage to make an exhibit. A large and growing market has recently been created for American evaporated and preserved fruits, and no better opening for such merchandise could be found.

It would also be of interest to cattle raisers to visit this place, as they will find exhibits of the pure Limousin breed of cattle, which are especially adapted for beef.

If Americans desire to exhibit, space can be retained for them at a nominal figure, and the cost for the entire season would not be high. Although the exhibition opens officially on the 15th of May, 1903, special privileges will be granted to American exhibitors so that they can enter as late as the month of July. The exhibition will close November 1, and it will be during the latter months that this city will be thronged by the largest number of visitors.

Inquiries may be addressed to either the consulate of the United States or M. Raoul Saulay, directeur-general de l'exposition, Rue d'Isly, Limoges, Haute Vienne, France. I inclose prospectuses.*

WALTER T. GRIFFIN,

LIMOGES, *March 25, 1903.*

Commercial Agent.

WATER SUPPLY OF MILAN.

A scheme for supplying Milan with good drinkable water was initiated in the year 1888 by the excavation of two trial wells near the "Arena" (the amphitheater of Milan). The first was sunk to a depth of 480 feet (79 feet below sea level); the second, to a depth of 268 feet. This plant at first provided water for cleansing the sewerage pipes of the new quarters and for distribution of drinkable water. The mechanical part of the plant in the Arena consists of two condensing motors of 35 horsepower each, two pairs of pumps of the Girard type, accumulators for the automatic detachment of the pumps, two Cornwall boilers of a superficies of 322 square feet, and a tubular economizer of the Green type. It was later decided to add another boiler of a superficies of 398 square feet. Four more wells were sunk (all of a diameter of $31\frac{1}{2}$ inches), to an average depth of 98 feet. The aggregate force of these new wells was 163 quarts per second. A reservoir was built of a capacity of 42,382 cubic feet of water. It is connected with the delivery pipe by a single tube of a diameter of $11\frac{3}{4}$ inches. The minimum level of the reservoir is $98\frac{1}{2}$ feet above the axles of the pumps.

In 1896 it was again found necessary to increase the production, and the pumps, which were then operating in Via Parini for supplying the fountain service in the public gardens, were connected with street mains for the supply of the houses in the vicinity. In 1901, being found unserviceable from long use, the pumps were substituted by a centrifugal of the Sulzer type, driven by an electric

* Filed in the Bureau of Foreign Commerce, where they may be examined by persons interested.

motor. A new well was sunk to a depth of 197 feet. It produces 68 quarts of water per second, and is provided with a sand filter. The numerous demands for both public and private service caused a new plant to be decided on, and in 1899 it was finished. It consists of two pairs of double-action pumps of the Riedler type, each group being driven by a 75-horsepower electric motor, and produces 211 quarts of water per second. In 1900 four other Sulzer pumps, with electric motors, were placed at the Rondó di Loreto, on the outskirts of the city. This plant also furnishes 211 quarts per second from its eight wells. At the end of the year 1901 there were in all 88 miles of mains, supplying for the most part the populous or more unhealthy quarters, as also industrial establishments, schools, hospitals, etc. The potable water, however, is now used for many public services, such as street washing, watering plants, flowers, grass plots, and trees in the public ways and squares; it also supplies nearly 100 drinking fountains and the large ornamental fountains in different parts of the city and the public markets and laundries. It furnished also, at the above date, nearly 1,000 hydrants for the fire brigade, and has substituted ordinary well water in about 4,000 buildings, including apartment and tenement houses and hotels.

The following figures will show at a glance the continuous increase in consumption of potable water:

	Cubic meters.
1889.....	146, 226
1894.....	1, 472, 483
1899.....	4, 088, 693
1901.....	5, 545, 226

It is presumed that the increase in consumption for the year 1902 has been another million cubic meters. It should be noted that of the 500,000 inhabitants of Milan only 200,000 are, so far, supplied with potable water, so that the quantity per head is high, reaching, on some days, as much as 208 quarts per consumer, which denotes excessive waste. From the numerous requisitions that are being received, it is estimated that the production must be again increased during the present year, as the general use of the potable water will be at least 20 per cent above that of last year.

MILAN, *March 20, 1903.*

WM. JARVIS,
Consul.

TRADE OF SPAIN IN 1902.

A glance at the annexed tables giving the principal imports into this country will show at once which articles have increased their sale here in the last year. Cotton is "facile princeps," with a declared value for the first ten months of the year of \$11,628,469, as compared with \$10,034,480 during the corresponding period of 1901. That the imports of the raw material for the industry in this part of Spain should have increased is in itself a favorable indication of prosperity. Part of the improved demand for cotton may perhaps be traced to the high prices ruling for flax, which have seriously affected the consumption of linens; but it is chiefly due to a general revival in trade as a result of the favorable crop returns.

I append a table showing the exact number of bales of American cotton landed at Barcelona during each month of 1901 and 1902.

Coal imports are valued at \$8,156,215, compared with \$7,493,806 during the preceding year. The cheaper prices of British coal have contributed toward an improved demand, buyers using these grades in preference to the poorer qualities of Spanish coal.

It is satisfactory to note the figures for those products which our manufacturers are steadily pushing in this market, in spite of the keen competition of our rivals. We see that the imports of agricultural machines have increased from \$95,054 to \$164,812; fine tanned leather, from \$380,664 to \$414,351. I may mention, with regard to the sale of American leather, that tanners here are complaining bitterly of the harm done to their trade by the growing consumption of these goods. They are finding out not only that their antiquated methods fail to produce as good an article, but that the cost of production prevents them from selling at a remunerative price against our manufacturers. With few exceptions, tanners lack the necessary capital to enable them to invest in proper machinery, so that there seems to be every chance for American dressed leather finding a permanent market in Spain.

An improvement will be noticed in the imports of electric incandescent and arc lamps, but I regret to say that these have been supplied by European countries, principally Germany. I have asked dealers why they can not obtain their supplies from the United States, and they reply that the German makers sell cheaper, take smaller orders, and grant easier terms of payment than American firms. Incandescent lamps are sold at 30 to 31 centimes (6 cents) each, freight and insurance paid to Spanish port. Large quantities are also sent by parcels post, 25 at a time, packed in cardboard boxes.

Under the heading of locomotives, locomobiles, etc., an increase of over \$100,000 is shown. Most of the locomobiles imported thus far have been of French manufacture. Electric locomobiles are practically useless in this country, except in the large cities, owing to the lack of generating stations. Steam-driven cars are also disliked, because of the fear of explosion.

The imports of lumber show a falling off, but this is due to those of 1901 having been in excess of the requirements of the Spanish market; consequently, the year opened with heavy stocks that had to be worked off. The sale of staves is naturally dependent on the year's vintage and the exportation of wine, which during 1902 showed a steady decrease compared with the figures for the two preceding years.

SPAIN AS A MARKET FOR AMERICAN GOODS.

Since my appointment to this post, I have endeavored to aid our manufacturers to open up the Spanish market for the sale of American goods. In spite of many difficulties, I have at last succeeded in interesting a responsible firm here in the establishment of an American trading house, to be worked in conjunction with a well-known firm of exporting agents in New York. I regret to say that in consequence of the prosperous state of trade in America I find little or no desire on the part of our manufacturers to interest themselves in commerce with Spain at present. In one case which came under my notice, a trial order for a sample lot of goods was sent to a firm in the United States, along with a remittance in payment, but the order was declined on the plea that, being unable to cope with the demand at home, foreign orders could not be accepted.

The careful study I have made of the Spanish market leads me to believe that there is a desire on this side for American goods, and I am of the opinion that our manufacturers should make an effort to let their products be known in this country, and should not refuse to execute sample orders, even though they find themselves unable at the present moment to establish regular business connections. By following this suggestion, Spain will be prepared and ready to take American goods when our manufacturers are again in a position to give their attention to export trade, and time will not then be lost in preliminaries.

BARCELONA, *March 11, 1903.*

JULIUS G. LAY,
Consul-General.

Table showing the principal imports into Spain during the first ten months of 1901 and 1902.

Description.	1901.		1902.	
	Quantity.	Value.	Quantity.	Value.
Coal.....tons...	1,639,270	\$7,493,806	1,784,172	\$8,156,215
Petroleum.....do.....	26,206	748,750	27,758	793,107
Lubricating oils.....do.....	4,334	204,308	4,225	199,186
Pig iron.....do.....	4,703	73,911	2,063	32,430
Wrought iron and steel rails.....do.....	6,821	194,899	4,024	114,975
Iron and steel wire.....do.....	2,735	136,788	3,049	152,485
Linseed.....do.....	23,849	1,601,282	27,703	1,860,098
Caustic soda.....do.....	12,533	411,812	14,732	484,056
Sulphate of potash.....do.....	117,210	3,348,867	118,654	3,675,827
Industrial starch.....do.....	9,706	374,392	12,530	483,336
Cotton.....do.....	58,534	10,034,480	66,230	11,628,469
Jute.....do.....	13,173	935,477	12,608	907,046
Hemp.....do.....	2,166	324,981	2,854	413,518
Flax and hemp yarns.....do.....	1,609	689,428	2,063	884,102
Combed wool.....do.....	1,779	1,321,878	1,750	1,269,286
Woolen cloth.....do.....	81	258,403	83	253,392
Raw silk.....do.....	124	798,107	131	819,310
Raw twisted silk.....do.....	23	207,160	27	215,642
Plain and ribbed texture.....do.....	50	801,760	53	821,625
Muslin, lace, and silk lace.....do.....	11	237,235	12	243,377
Velvet and plush mixed with cotton.....do.....	23	166,207	27	199,602
Silk texture mixed with cotton.....do.....	94	428,297	102	461,451
Wood pulp.....do.....	20,680	590,855	22,252	635,766
Colored prints.....do.....	148	317,833	148	310,796
Staves.....number...	13,477,000	1,636,493	11,170,000	1,356,357
Wood boards.....cubic meters*	519,143	5,191,430	401,707	4,017,070
Plain wooden articles.....tons...	747	213,359	745	212,892
Hides and skins.....do.....	8,278	2,483,402	9,284	2,785,207
Blazed leather and tanned calfskins.....do.....	126	380,664	138	414,351
Other tanned skins.....do.....	206	441,079	214	458,169
Animal fats.....do.....	13,564	1,743,937	12,939	1,663,628
Natural fertilizers.....do.....	3,281	93,742	4,231	120,883
Artificial fertilizers.....do.....	10,376	340,926	9,826	324,053
Incandescent lamps.....number...	880,146	94,303	1,330,710	142,590
Arc lamps.....do.....	212,583	222,952	250,171	285,910
Telephone fixtures.....do.....	15	15,421	11	11,408
Agricultural machinery.....tons...	605	95,054	1,048	164,812
Engines.....do.....	5,423	929,434	5,267	904,345
Locomotives, locomobiles, etc.....do.....	1,973	422,830	2,459	526,931
Sewing and knitting machines, bicycles, etc.....do.....	951	747,484	1,108	879,919
Railway cars and parts for same.....do.....	449	69,343	101	15,581
Iron and steel ships.....do.....	60,695	3,468,323	11,263	643,210
Pork and lard.....do.....	568	97,311	225	37,518
Wheat:				
From United States.....do.....	6,878	230,907	857	40,186
From France.....do.....	963	32,337	109	3,651
From Roumania.....do.....	6,324	212,314		
From Russia.....do.....	66,707	2,239,438	43,053	1,445,359
From other countries.....do.....	43,059	1,445,566	5,642	189,407
Cocoa beans:				
From Fernando Po.....do.....	584	158,267	872	236,880
From Ecuador.....do.....	390	119,715	399	92,742
From Venezuela.....do.....	579	173,498	724	217,294
From French American colonies.....do.....	644	193,136	1,641	492,372
From other countries.....do.....	2,335	700,652	2,224	367,103

* 1 cubic meter=35.316 cubic feet.

Table showing the principal imports into Spain, etc.—Continued.

Description.	1901.		1902.	
	Quantity.	Value.	Quantity.	Value.
Coffee beans:				
From Fernando Po.....tons.....	11	\$2,231	13	\$2,601
From Brazil.....do.....	1,222	394,227	934	267,002
From Venezuela.....do.....	1,854	529,838	565	161,419
From French American colonies.....do.....	51	14,650	88	25,060
From other countries.....do.....	5,456	1,558,949	5,781	1,651,861
Alimentary preserves.....do.....	423	302,115	617	440,964
Rubber textures.....do.....	68	176,519	77	197,529

Imports of certain produce at the port of Barcelona.

Description.	1900.	1901.
	<i>Tons.</i>	<i>Tons.</i>
<i>In Spanish vessels from the Philippine Islands.</i>		
Hemp and jute.....	12	94
Cotton.....		132
Cocoa.....		9
Coffee.....	60	137
Hides.....		3
<i>In foreign vessels from Europe and Asia.</i>		
Hemp and jute.....	6,984	8,239
Cotton.....	6,031	4,975
Cocoa.....	2	306
Coffee.....	265	404
Hides.....	971	727
Guano.....	43	
Petroleum.....	845	1,096
<i>In foreign vessels from trans-Atlantic countries.</i>		
Cotton.....	16,564	20,326
<i>In Spanish vessels from foreign countries.</i>		
Hemp and jute.....	574	1,653
Cotton.....	3,834	10,666
Sugar.....	5	
Cocoa.....	53	276
Coffee.....	522	1,776
Hides.....	3,679	3,197
Guano.....		177
Petroleum.....	251	731
<i>In Spanish vessels from Asia and America.</i>		
Cotton.....	35,244	36,028
Cocoa.....	39	77
Coffee.....	140	505
Hides.....	4	12
Petroleum.....	8,987	373
<i>In Spanish vessels from the Antilles.</i>		
Sugar.....	9	
Cocoa.....	35	176
Coffee.....	158	1,034
Hides.....	12	493

American cotton receipts in Barcelona.

Month.	1900.	1901.	1902.
	<i>Bales.</i>	<i>Bales.</i>	<i>Bales.</i>
January	29,118	20,665	49,247
February	28,615	13,245	20,759
March	20,560	23,528	13,816
April	28,976	20,721	15,652
May	21,937	29,660	23,003
June	14,551	6,381	13,490
July	18,066	7,953	25,994
August	5,511	19,410	19,643
September	2,425	9,259	9,316
October	18,252	34,865	41,646
November	38,619	37,175	29,523
December	31,225	27,970	30,504
Total	257,855	250,832	292,503

TRADE OF ANDALUSIA IN 1902.

The industrial activity in Almeria city and province during 1902 was much more in evidence than in former years. More business, more money, and more substantial gain are the net results that give increased hope of permanency to the business life in this section of Andalusia.

IRON ORE.

In another fourteen months, Almeria will increase its exportation of iron ore by 150,000 tons, and the shipments of agricultural products will also undoubtedly advance. The trade in iron ore is improving. In 1902, there was a gain of 65,000 tons over the previous twelve months. The contractors will soon have completed for the Alquife Mines and Railway Company, Limited, the largest iron-ore pier on the Mediterranean, with a capacity of over 300,000 tons a year. Two more loading piers are under study, and one or two cables for the transportation of mineral from the interior.

In the eastern part of the province, at Garrucha and Agua Amarga, exceptionally good work is being done by Spanish companies, and the exportation of iron ore is steadily increasing; at present, it is larger than at the capital.

ORANGES AND GRAPES.

The various fruits were never in better condition. More attention is being paid to the cultivation of oranges, for which there is always a good market, as those produced here are among the finest in the world. The Almeria grape, however, has apparently reached its maximum of profitable production. Last season (October and November) the number of barrels reached the million point, as it did in 1901. The crop has doubled in six years.

The grape growers, apparently, have not remembered the results

brought about by the overproduction of wine. It will be recalled that in the early nineties France lost most of its vines through disease. Spain was then able to ship millions of gallons of common wines to its neighbor, and more vines were planted to meet the demand. The vines of France were restored, Algeria also became able to produce a cheap wine, and suddenly Spain found herself with her cellars full and no market. England and America, the largest grape buyers, have apparently reached their limit, and Germany, the third heaviest buyer, only takes 50,000 barrels. The St. Petersburg market has been lost altogether. All the available markets in the world have been entered by the Almeria grape exporter, and yet there seems to be plenty of fruit to supply the demand at present; and when the crop is doubled, as is possible in 1903, there will be another case of overproduction.

Ten years ago, barrels of first-class grapes in New York brought from \$10 to \$15; last year, the average price was not over \$3.75, and no barrel sold for more than \$6.

NEW RAILWAY.

The Sud de España (South of Spain) Railway will complete the branch line from Moreda to Granada in about six months. By the end of March, 1903, the road will have been constructed to within 2 miles of that city. This line will greatly increase the exportation of iron ore. The railway is, however, poorly equipped with rolling stock and at present can haul only 276,000 tons of iron ore yearly.

HARBOR WORKS.

The port is approaching completion. The west breakwater will be extended no farther, and the east mole lacks little of being ready for ships; part is now being used. The Spanish budget for 1903 appropriates \$40,000, which is considered sufficient to complete the harbor of Almeria.

A. E. CARLETON,
Consular Agent.

ALMERIA, *March 2, 1903.*

Principal exports from Almeria in 1902 and 1901.

Article.	1902.	1901.	Increase.	Decrease.
Almonds.....boxes...	4,459	3,588	871	
Colamine.....tons...	800	700	100	
Esparto.....do.....	21,880	19,400	2,480	
Grapes.....barrels...	1,043,118	1,003,195		50,077
Iron ore.....tons...	295,600	230,000	65,600	
Lead.....do.....	9,848	10	9,838	
Salt.....do.....	11,540	50,000		38,460
Oranges.....cases...	18,758	13,543	5,215	
Zinc, calcined.....tons...	1,814	1,046	768	

* First complete year of work.

† 35,000 tons on hand December 31, 1902.

Principal imports into Almeria in 1902 and 1901.

Article.	1902.	1901.	Increase.	Decrease.
Coal.....tons.....	21,314	*28,2		
Patent fuel.....do.....	6,505			
Timber:				
From Russia.....cubic meters.....	1,498	9,564		7,066
From America.....do.....	200	1,579		1,379
Staves.....pieces.....	510,000	390,179	119,821	

* Includes patent fuel.

Exportation of fruits from Almeria in 1902.

For—	Vessels.	Grapes.		Oranges.	Almonds.
		50-pound barrels.	25-pound barrels.	Cases.	Boxes.
New York.....	17	156,268	275		
Liverpool.....	70	177,525	1,662	3,281	
London.....	49	220,301	453	14,537	4,378
Glasgow.....	17	101,104	65	600	25
Hull.....	8	33,509	10	215	56
Bristol.....	4	11,189			
Hamburg.....	7	21,970	589	118	
Newcastle.....	5	9,082	21		
Copenhagen.....	1	5,665	95		
Manchester.....	2	902	24	7	
Baltic ports.....	3	3,334			
Marseilles.....	4		310		
Gothenburg.....	1	1,120	75		
Christiana.....	1	1,140	10		
Total.....	189	1,043,118	3,639	18,758	4,459

For—	Figs.	Pome- granates.	Toma- toes.	Melons.	Raisins.
	Cases.	Cases.	Cases.	Cases.	Boxes.
Liverpool.....		37	60		
London.....	2,603	44		9	227
Glasgow.....				1	
Hull.....			50		
Copenhagen.....		30		260	
Total.....	2,603	111	110	270	227

NOTE.—Boston, Philadelphia, and Baltimore shipments are included in those to Liverpool and Glasgow.

Iron ore exported from Garrucha and Agua Amarga (province of Almeria) in 1902.

	Tons.
United States.....	44,018
England.....	198,543
Holland.....	116,501
France.....	22,007
Germany.....	5,450
Belgium.....	3,872
Total.....	390,391

Traffic of Sud de España Railway in 1902,

Passenger trains:

Passengers	number...	190, 442
Excess luggage.....	tons...	33

Freight trains:

Grapes	do.....	4, 821
Minerals	do.....	276, 608
Esparto	do.....	11, 059
Sundries	do.....	108, 104

PROPOSED SUGAR TRUST IN SPAIN.

After the loss of the island of Cuba, attention was turned to the possibility of producing beet sugar on an extensive scale in Spain. The prospect of a lucrative investment attracted capital, and large factories were erected and wide tracts of country were devoted to the cultivation of the beet. Overproduction quickly ensued, and stocks of sugar have been accumulating year by year, with little probability of any improvement in the condition of the trade or chance of the surplus being disposed of in foreign markets. Manufacturers of cane and beet sugar have, therefore, decided to endeavor to form a trust to control the production and regulate the sale of sugar in this country. Negotiations have been going on for some months, but thus far with no tangible result, although according to the latest reports 90 per cent of the sugar manufacturers have joined the combination.

It is feared by many that the ultimate aim may be the securing of a monopoly for the sale of sugar, in return for a yearly payment to the State, as it is argued that the success of the trust depends entirely upon some such security against future tariff alterations. It is this fear that has aroused a widespread opposition to the proposal, and strong protests are being sent to Madrid from all parts of Spain. The manufacturers of products into which sugar largely enters are especially interested in preventing the price from being increased, and the general public, who now pay the equivalent of about 10 cents per pound for ordinary loaf sugar, do not view with favor a scheme which will probably result in enhancing the cost of this article. On the other hand, those who are working for the formation of the trust maintain that their object is not to increase but to cheapen the cost of sugar by selling direct to the consumers. They point out that while the public is paying 140 to 150 pesetas* (\$19.99 to \$21.42) per 100 kilograms (220.46 pounds), the dealers are buying from the mills at 95 to 100 pesetas (\$13.56 to \$14.28), and that the large margin of profit here shown might be divided between

* 1 peseta = 14.28 cents at present market value.

the trust and the public. Foreign sugar under the present tariff costs here 120 pesetas (\$17.13) per 100 kilograms, but the trust, they say, would be able to advantageously supply the consumer at the price of 115 pesetas (\$16.42).

BARCELONA, *March 24, 1903.*

JULIUS G. LAY,
Consul-General.

STEEL FACTORY IN SPAIN.

Vice-Consul H. H. Hallatt sends from Madrid, March 5, 1903, translation of an article from the *Liberal*, of that city, as follows:

A GREAT CATALAN INDUSTRY.

We have to report to-day another large establishment of recent creation in Catalonia. Steel will be manufactured here on a large scale under conditions that have not as yet been employed in our country. The installation, in Badalona, of the first Spanish factory of this kind is now approaching completion—that is to say, a metallurgical establishment for the production of all classes of steel, although for the present the manufacture will be that of fine and molded (cast) steel exclusively.

The process adopted is the same as that employed not only in England and in other countries in Continental Europe, but also in North America. It involves obtaining the steel direct from the mineral; a new system of making armor plate, whereby the great problem of soldering has been solved; the making of plates of three, four, and more qualities of steel which are perfectly soldered together; the purification of the iron as it comes from the furnace; the manufacture of rolling-mill cylinders; etc.

The installation is almost finished and the results of the preliminary work are satisfactory in quality of steel and also with respect to the cost, which has proved to be such that the product can not only compete with the foreign product, but can be exported.

As has been said, the works for the present will only manufacture steel for tools and instruments and all classes of molded (cast) pieces, from the largest to the smallest, and steel bars (rails). In this way, the creation of a large number of industries that do not exist in Spain will be facilitated, as well as the development of others, the profits of which are small in relation to the large amount of work done, in consequence of their having to bring the principal material from abroad.

The works at Badalona are 12,000 square meters (14,352 square yards) in extent. There is a Siemens furnace of from 5 to 6 tons capacity and one of 15 tons in course of construction; further, two furnaces for reheating, one large oven, a workshop for casting and forging, one steam hammer of large and one of smaller dimensions, shears and saws for working cold and hot iron, a metal-testing machine, cranes, lathes, and other machines necessary in industries of this kind—all run by steam engines fed by various boilers.

Consul-General J. G. Lay writes from Barcelona, March 20, 1903, in regard to the same enterprise. The Esteve process, he says, is employed, and the company formed to work the patent in Spain has an initial capital of 1,500,000 pesetas (about \$214,286). He adds:

Several castings have already been made at the works, one a few

days ago, when a steel plate was cast to replace the broken bed-plate of a steel hammer. Its dimensions were $19\frac{1}{2}$ square feet and the weight about 4 tons. Although the operation was carried out in the open air, with the risk of the metal cooling and spoiling the casting, the result was in every way satisfactory. Other steel castings have also been successfully made of drill steel and mild steel. The ingots are remarkable for their purity and homogeneity. It is claimed for the Esteve process that, with any cupola and with the same materials as are at present employed in an iron foundry, no less than 22 different qualities of steel can be obtained, from the mildest to the hardest grades, suitable for tools. The process is simple, but it insures absolute regularity in quality.

Experiments made in England show that Esteve steel is capable of resisting a pressure ranging between 122 kilograms (268.9 pounds) per square millimeter (0.0015 square inch), with 11.5 per cent elasticity, and 64 kilograms (141.1 pounds), with 36 per cent elasticity.

The new works at Badalona will, it is reported, be able to place steel plates on the market at prices considerably cheaper than anything now offered, in spite of the disadvantages of situation, Badalona being far removed from both the iron and coal mining districts of Spain.

Whether the sanguine hopes of the promoters of the company will be realized remains to be seen, but it is evident that efforts are being made in Spain to develop the country's natural resources at home, instead of allowing all the mineral wealth to be taken abroad for manufacture and then returned for sale in the finished state. I may mention that the leading firm of nail makers here, which formerly purchased most of its wire abroad, is about to erect a large mill for manufacturing its own product.

SPANISH-UNITED STATES STEAMSHIP SERVICE.

A line of steamships plying between Trieste, Austria, and New York will hereafter touch at Malaga every twenty days and proceed from here direct to New York, Philadelphia, Boston, and Baltimore, without stopping at any intervening port in Europe.

This innovation means much, both for local exporters and for American importers, as it will enable buyers in Philadelphia, Boston, and Baltimore to secure their goods direct, instead of paying extra freight charges from New York, as at present. It is also taken to mean that the exportation of Malaga olive oil, almonds, and raisins to the United States is steadily on the increase, thus warranting the cooperation of a competing line of steamers.

The company is the Austro-Americano, and has a fleet of 25 steamers. Boats leave Trieste twice a month and call at Italian ports en route to New York. Heretofore, the only Spanish port visited was Barcelona. The Compañia Transatlantica, a Spanish company, has, up to this date, provided the only regular direct service from Malaga to the United States, one boat a month leaving here for New York, though during the vintage season several chartered boats make special trips.

It is not the purpose of the Austrian company to conflict with the Spanish line as to sailing dates. The latter's steamer leaves here about the 28th of each month, and while the exact dates of sailing have not as yet been fixed by the Austrian company, it appears to be the intention to have a boat call here for cargo on about the 5th and 25th of each month. It will touch at any port on the Atlantic coast for which it has freight, and will proceed southward from either Boston or New York to New Orleans, and from there return to Malaga with raw cotton and barrel staves. The line is not an exceptionally fast one, it being estimated that the majority of the steamers will consume fifteen days in transit from Malaga to New York or Philadelphia.

The local agents feel that this method of direct transportation will appeal especially to Philadelphia and Boston importers. Considerable business in almonds and raisins is done with both cities, and within the past year 30 tons of Spanish earth paint has been shipped each month to Philadelphia. Ignacio Morales is the Malaga agent of the Austro-Americano Line.

D. R. BIRCH,
Consul.

MALAGA, *March 20, 1903.*

SILK CULTURE IN FRANCE.

The following extracts are from an elaborate report by Consul John C. Covert, of Lyons, the full text of which has been sent to the Department of Agriculture:

The number of mulberry trees planted per acre in France depends upon the soil and climate, and whether other crops are planted upon the same ground. Dwarf trees are sometimes planted as a hedge, about 3 feet apart. In planting in a new country, a fair rule would be to follow the local practice of planting apple trees. The mulberry does not shade so much ground as an apple tree, but its roots spread a great deal. It is seldom that anything but mulberry leaves are employed to feed silkworms in France. Very rarely the worms hatch before the mulberry leaves are out, but on such

occasions they are fed young rose leaves for a few days. In France almost anything that does not require much sunshine is planted between the mulberry trees; therefore, any estimate of the cost of land for the French silk crop could not be exactly given. Only one crop of cocoons is raised per year, the greater part of the work being done in one month.

White mulberry staddles—fine trunks—cost 15 and 30 cents; plants, 20 to 30 francs (\$3.86 to \$5.79) per 1,000; large, black mulberry trees, 70 to 80 cents. Dry cocoons cost, at this time, 5.50 francs (\$1.06) per pound. Fresh cocoons were worth at the last harvest (June) about 1.75 francs (33.7 cents) per pound. Prices vary every year, with every market, and with the quality. Perhaps 2.75 francs (about 55 cents) per kilogram (2.2 pounds) would be a fair average estimate of the usual price of good, fresh cocoons.

Mulberries are grown from seeds or from grafts. They are hardy, but should be planted in a climate where there are but few late frosts. Some 40,000 hectares (about 99,000 acres) of land in 21 Departments of France are planted in mulberries. The most highly prized for its large growth of leaves is the moretti. Of this variety, 33,880 pounds of leaves are used to obtain 2.2 pounds of cocoons, while from the others 40,810 pounds are necessary to produce the same quantity. The yield of cocoons from silkworms varies astonishingly. The production of fresh cocoons from 1 ounce of eggs in France was: In 1886, 74.76 pounds; in 1887, 73.2 pounds; in 1888, 76.33 pounds; in 1889, 64.14 pounds. During the last year the lowest yield was 45.27 pounds in the Department of the Rhône and the highest was 128.45 pounds in that of the Oriental Pyrennees and 147.5 pounds in that of the Aude. Where the work is conducted on a small scale the product is relatively larger. In the large establishments, where an immense output is aimed at, indispensable hygienic conditions are frequently neglected and the worms suffer from lack of care. In the small nurseries, women and children can attend to their household affairs and at the same time give the necessary care to the rearing of the worm. During the fourth period constant attention is required to keep the worms in good condition.

When the orchard is once formed, whether by plants from the nursery or by the purchase of young plants, the permanent care of the trees should be along the lines usually followed by horticulturists with other trees. The interval varies according to the form given to the trees. Those with high trunk and with branches beginning a little over 6 feet from the ground are planted in rows with distances between of 25 to 36 feet, according to the fertility of the soil, in order that the air may circulate freely among them; they are planted in beds 6 feet square by 2 to 2 feet 8 inches deep. The

"half-trunk" trees are planted 12 feet apart, in squares. From 9 to 12 feet space should be left between the dwarf trees.

Another mode of planting mulberries is in hedges. Trenches are dug about 18 inches deep, and plants of two or three years are set $1\frac{1}{2}$ to 2 feet apart. In the third or fourth year, the hedge will give its first yield of leaves. The trees should be stripped of leaves only once every two or three years, and the stripping should not be commenced until the tree is 6 or 7 years old. The picking of the leaves is begun in the morning as soon as the dew is gone. It is important to keep the leaves smooth and not to pick those that are damp. If the leaves are kept in a sheltered place, out of the sun and rain, they may be preserved some time before being taken to the nursery.

SILK CULTURE IN GREECE.

From good authority it is learned that the culture of silk was first introduced into Greece from China by monks in the first part of the sixth century A. D., and the product has probably been cultivated here since that date, both soil and climate being suitable for the industry. The success of the industry in Greece has been varying, owing to many causes. About twenty years ago a disease attacked the eggs of the silkworm and made such ravages that the industry was sadly crippled, and the annual product of silk, although now steadily increasing, has not yet reached the former level.

Within the last few years silk culture in Greece has had new life infused into it by the assistance of the Greek Government and of some philanthropists, and it is hoped that before many years the production of silk will be the largest in the history of the country. The Greek Government annually imports silkworm eggs from foreign countries, distributes them gratuitously, and has experiments made in its agricultural stations to learn the best methods of silk culture for the Kingdom.

No other food than the mulberry leaf is given to silkworms in Greece. They feed on this during the whole of their short lives, or until ready to spin their cocoons, and the fresher and more tender the leaf the better the worm likes it; therefore the leaves of the young mulberry trees, which are more tender and nutritious than those of the old ones, are the best food for the silkworms.

A medium soil, not too rich or too poor—a good sandy loam on a high or well-drained surface—is best for growing the mulberry tree. In Greece the tree is raised from the seed and is transplanted when between 1 and 2 years of age. Nearly all of the seed used is imported—mostly from Germany, with a small portion from Italy.

The prices of white mulberry seed in Germany are quoted at from 8 to 10 marks (\$1.90 to \$2.38) per kilogram (2.2046 pounds); the prices in Italy are about the same.

In Greece the mulberry trees are usually transplanted in the months of January, February, and March, and in a similar manner and with about as much care as an apple tree is transplanted in the United States. The number of mulberries planted to an acre of ground depends upon the richness of the soil; they are set 7 to 9 meters (7.65 to 9.84 yards) apart. The maximum age of the mulberry tree in Greece varies from 50 to 70 years.

Greece purchases from foreign countries nearly all of the silkworm eggs it uses. Up to the year 1900 all of the eggs used were imported, but now a very small portion is of home production. The eggs come from the following countries, in proportions indicated by the order in which they are named, viz, Turkey, France, Italy, and Hungary. The prices of the eggs in Greece vary from 5 to 15 drachmas (41.5 cents to \$1.245) per 25 grams (0.88 ounce).

The cocoons of the silkworms are sold and used in the green state in Greece, the prices of the green cocoons varying from 4.50 to 6.50 drachmas (37.3 to 54 cents) per oke.* Damaged or punctured cocoons sell for about one-half the price of the good ones. A young girl of Mitylene has discovered a method by which the punctured cocoons are made into beautiful artificial flowers of very natural colors and forms. Her work is greatly admired, and will doubtless increase the value of damaged cocoons.

It is not known how many persons are employed in the silk culture in Greece during its short season each year; but there are a great many, mostly women and children, and the number is annually increasing. Nor are there any reports or statistics as to the total annual product of this industry throughout the Kingdom.

A report (published in the agricultural bulletin of the Greek Ministry of the Interior in January, 1902) by Mr. A. F. Schmidt, director of the agricultural station at Kalamae, gives so many interesting details of experiments made in silk culture at that station that I inclose herewith a translation of his report† for the information of those concerned in the industry in the United States.

DANIEL E. MCGINLEY,

ATHENS, *March 10, 1903.*

Consul.

* In the Ionian Islands an oke equals 2.6998 pounds, but elsewhere in Greece it equals 2.8518 pounds.

† Transmitted to the Department of Agriculture.

THE CORINTHIAN CANAL.

A report upon the canal which connects the Gulf of Corinth with the Gulf of Ægina, cutting its way through the Isthmus of Corinth, or Megara, may not be considered of particular value to our own country in its proposed shortening of the sea distance between New York and San Francisco, as the canal of Corinth dwindles into insignificance when compared with either the Panama or Nicaragua water routes; yet the Corinthian Canal may be considered a miniature of our projected transcontinental water route, and it is with this in view that I propose to give a few of its more important features. For statistics and other data, I am indebted to Mr. A. Raugabé, general secretary of the canal company in Athens, who has very courteously rendered much valuable assistance in the compilation of facts concerning the history and construction of the canal.

A few details as to the historical side of this undertaking may be of interest. I may note that in so far as the unsuccessful modern attempts are concerned, there are striking similarities between the canal of Corinth and the original Panama Canal, since both feats were undertaken and eventually abandoned by companies supported by French capital.

It was as early as 600 B. C. that Periander, tyrant of Corinth, proposed to cut his way through the little neck of land which was all that separated this city from the other centers of Greek trade; but he was confronted by too much superstition to make his scheme feasible. Both Julius Caesar and Caligula revived the canal scheme, but neither of these Romans succeeded in effecting anything. To the Emperor Nero falls the credit of the first decisive attempt to cut through the isthmus and, from evidence still to be seen, the work was prosecuted with vigor, but was interrupted by his death. The resurrection of the scheme may be credited to many in later times—to the Venetians during their occupation of the Peloponnesus, to Governor Capodistria in the early days of Greek independence, to the Cretan engineer Lygouni, and especially to the Greek Government itself, which, in 1869, passed a law authorizing the construction of the canal. But it was not until 1881 that General Türr, aid-de-camp of King Victor Emmanuel, obtained the necessary rights for beginning the work and organized a canal company with its seat in Paris.

The work began from the Corinthian side and was divided into five sections. Little difficulty was experienced in the first three, or

about 4,700 meters (5,140 yards) of the whole. With the same dispatch, also, the last section jutting upon the isthmian side was made ready. It was in cutting through the 300 meters (326 yards) which stretched between these portions—a section formed of material so hard that the use of dynamite failed to dislodge a single block—that the company met its greatest drawback, and, notwithstanding the extension of time accorded for the completion of the contract, the society found itself out of funds and unable to continue the work. A new subscription was made, and the society dispensed with its costly machines—which were useless in cutting through the flintlike strata—and purchased others which in the end proved as unavailable as the former ones. These and other expenses (notable among which must be recorded that of bridging the canal, at a cost of \$80,000) rapidly reduced the newly subscribed capital, and in 1890 the society found itself again penniless and a receiver was appointed.

The failure of this company represented an outlay of almost \$10,000,000. It was then that Mr. Syngros organized the present enterprise with a capital of 5,000,000 francs (\$965,000), which rapidly, but not without hardships, completed the work. Assisted by the National Bank of Greece and the Cretan Industrial Bank, Mr. Syngros at once secured the necessary funds, and, in spite of the solid rock yet to be cut through, the canal was completed three years after the failure of the old company and the formal inauguration celebrated in July, 1893. The canal shortens the distance between all points in the Adriates and the Piræus more than 130 miles. It is not an expensive water route, and it brings Patras and Piræus, the two centers of the export and import trade—at both of which most vessels must touch—within twelve hours of each other. Yet with all these advantages, in an age when a day's time not infrequently decides the fate of competition, the picturesque water route is almost deserted by foreign craft, and the numerous vessels which come from the north and touch at Patras persist in braving the Greek coast line, the storms off the southern capes, and the twenty-odd hours' extra sailing to a use of the Corinthian Canal.

The reason is that the canal is poorly located. The winds which render the open gulf a raging sea do not subside at the approach to the water way. The canal is like a huge air shaft, and the mighty currents of air which rush from one gulf to the other are not calculated to encourage the mariner to run his ship between precipitous walls 260 feet high and separated by only 80 feet of sea.

A second obstacle takes the form of a reversing current, due to a striking variation in the tides of the two gulfs. The real difficulty, however, is the size of the canal itself; its width at the bottom is 68 feet 11 inches, and it has a depth of 26 feet 3 inches. The

largest vessel to have used the canal, so far as I can learn, was the Italian cruiser *Giovanni Bausan*, of the following dimensions: Length, 275 feet; beam, 42.6 feet; draft, 18.4 feet; and tonnage, 3,068. However, vessels of 23.5 feet draft and 68.5 feet beam are permitted by the regulations to pass, which dimensions would include most of the steamers regularly trading in Greek waters. Nevertheless, the exacting pilotage which such dimensions render necessary, emphasized by the reversing current, has so far served to make the canal a much less appreciated water route than it would have been in the days when steamships were more modest in their dimensions.

It is too late to think of changing the size of the route, but the other difficulties can be reduced, and it is probable that some effort will be made to remedy matters. At each approach the small breakwaters, while rendering necessary service, contribute to the difficulties of navigation, and are not sufficient to afford absolute protection to the canal. It is proposed to supersede these barriers by two large harbors that will make the approach less hazardous and will largely regulate the current. No action, I believe, has been taken, but some such plan is under consideration, although the extraordinary depth of the Corinthian Gulf will render the repairs very costly.

The harbor on the Corinthian side is formed by two arms running from each side of the isthmus and terminating in a line with the two sides of the channel, so that vessels entering are ready to steer ahead. The isthmian harbor is formed of but a single arm, which closes the channel entirely toward the mainland and requires the setting of a new course, both on entering and leaving the canal.

The span of the isthmus, as traced by the canal from gulf to gulf, is 6,342 meters (3.94 miles), and its greatest depth 79.16 meters (259.7 feet). A solid block of masonry, some 6 feet in thickness, lines the base and sides of the channel to a height of 32.5 feet, or about 7 feet above the sea level, as a protection against the currents, its extremities making a substantial quay on each side from sea to sea. The sides of the channel have required no special protection of masonry, except in a few sections, notwithstanding their precipitous pitch. A passenger on one of the Greek steamers, looking up at the railroad bridge which crosses the canal at a height of 47 meters (122 feet) and is but 80 meters (262 feet) long from end to end, believes himself to be gazing almost straight upward, while the slopes of the deepest part of the channel, by reason of their greater height, rise like two perpendicular cliffs.

The slopes are protected from erosion by conduits which skirt the edge of the summits and carry away all surface water. Sixty electric lamps of 20 candlepower mark the channel at night, and on

each side at distances of 600 feet are attached iron stanchions, to which ships may tie in case of accident or as a protection against a driving current.

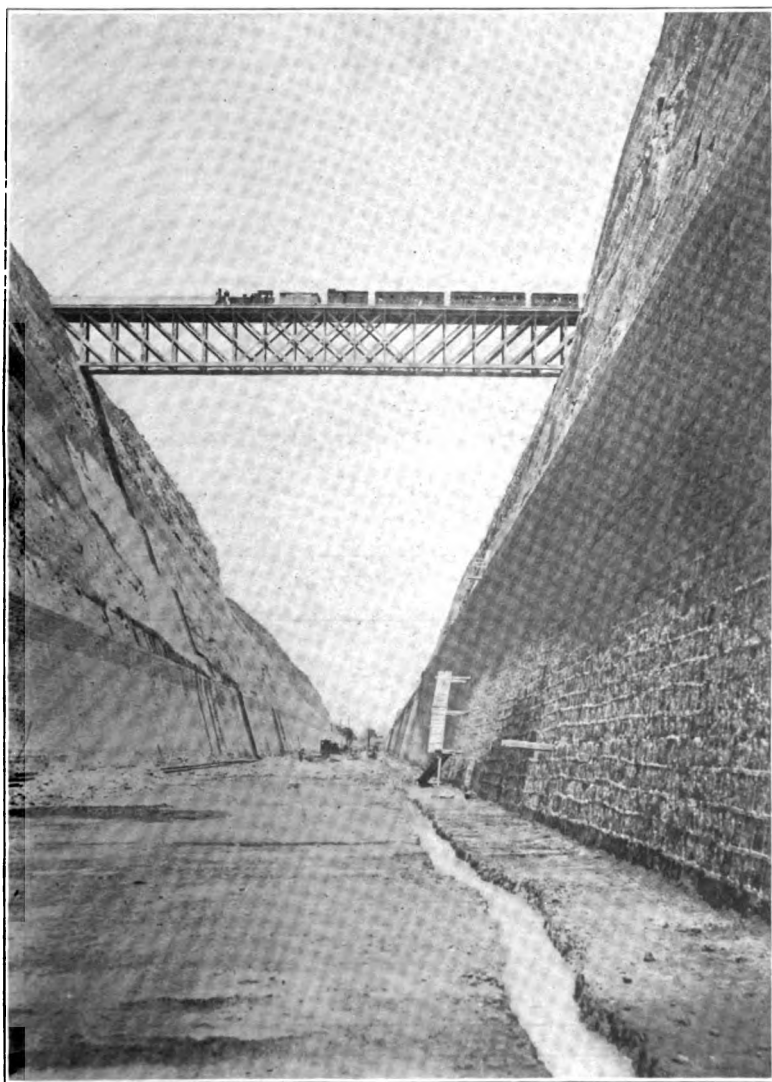
If one of the present line of foreign steamers should decide that the twenty hours gained by using the canal are worth the saving at any price, or if a Greek line of steamers is fitted out to compete for a share in the far-sea trade, competition will drive the other lines in their wake and the canal company will come into its share of the receipts which are literally going up in the smoke of every steamship which rounds Cape Matapan.

FRANK W. JACKSON,
Consul.

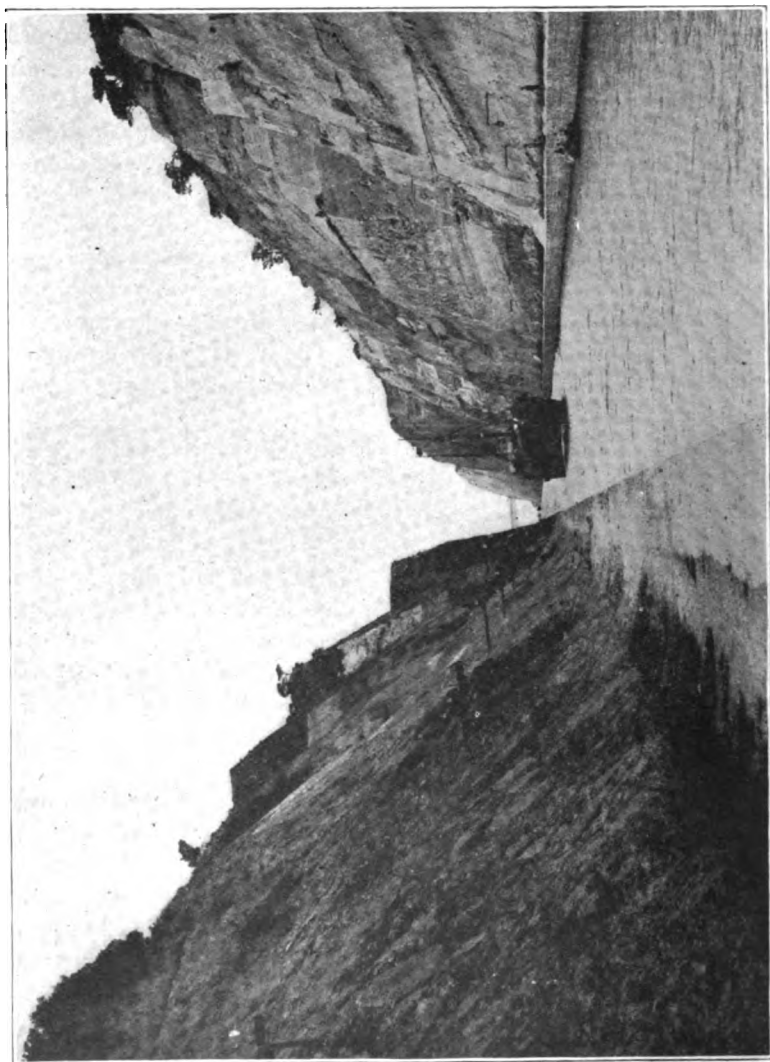
PATRAS, *March 28, 1903.*



GENERAL PLAN OF ISTHMUS IN RELIEF.



THE COMPLETED CANAL AND RAILROAD BRIDGE.



THE CANAL AS IT IS TO-DAY.

CURRANT CRISIS IN GREECE.

The economic structure of this Kingdom rests largely upon the currant industry, and any question which agitates this becomes a national matter. The crisis has been impending since 1902, when prices opened, as a result of the enormous crop, 50 per cent lower than in the previous year. Popular sentiment is strong in favor of a bill the two main features of which are (1) the imposing of a tax on all vineyards hereafter planted and (2) the removal of the limit of the retention law, which at present permits the retention of as much as 20 per cent of the annual crop, in order to fortify prices. The former can have no external interest beyond the possibility of rendering the crop uniform in future years, since most of the available land is already under cultivation. The latter, however, takes on some complications from the attitude which is likely to be assumed by Great Britain.

When, in 1890, Great Britain reduced the duty on Greek currants from 7s. to 2s. (\$1.70 to 48.6 cents) per cwt., it was with the understanding that no land tax was to be imposed by Greece upon currant-bearing districts. In the years that followed, the demand for the Greek currant was unparalleled, and the production increased until in 1899 the surplus was so large as to call for immediate measures. The Greek Currant Bank was organized and a bill voted which authorized the retention of as much as one-fifth of the annual crop of currants for the encouragement of home industries (especially of wine and spirit), the actual amount to be fixed by the prefects of the currant districts. England considered this law as a roundabout violation of the agreement between the two countries, but is said to have made no protest. The present agitation for the removal of this 20 per cent limit (that is to say, the fixing of no limit whatever to the amount of currants which may be retained, but allowing the matter to be governed entirely by the size of the crop) has caused the British minister at Athens to intimate that Great Britain will protest against any such law and may impose a prohibitive duty on this product. It remains for the Boulé at Athens to choose between the favor of England, whose markets buy heavily of the currant grape, and the strong sentiment of all currant-growing eparchies, which demand the immediate passing of such a measure.

English capitalists have proposed to the Greek Government to form a monopoly of the currant trade (under the name of the Mercantile Bank of Greece, Limited) and to purchase the annual yield at a price between 200 and 400 drachmas (\$25 and \$50) per 1,000

pounds, in proportion to the quantity of the vintage. Not all the conditions of the proposed syndicate are known—in fact, it is not safe to assume that any of the published conditions are accurate—but the following has been made public:

The syndicate proposes (1) to spend £100,000 (\$486,650) yearly for the preparation, cleaning, and packing of the currants; (2) to set aside £25,000 (\$121,663) yearly as a reserve fund to secure the stability of exchange; (3) to contribute £80,000 (\$389,320) yearly either directly to the Greek Government or in the form of a subsidy for the Greek merchant marine; and (4) to spend £65,000 (\$316,323) yearly in advertising the Greek fruit throughout the world, besides appropriating one-half the net profits to other interests in some way bearing upon the currant industry and consumption.

The proposition seems hardly feasible. The weakest point in the proposed monopoly is its failure to guarantee to use more than 130,000 tons the first year—it being understood that should a quantity of this first purchase remain unsold, the same would be carried over to the following year and the amount deducted from the second purchase. The strongest argument for the change in the retention law is that the retention of any amount of currants for home consumption can not be construed as equivalent to placing a tax upon the land which produces them, and therefore has no essential bearing upon the agreement existing between Great Britain and Greece. Upon this point the action of the British minister at Athens will be watched with interest.

FRANK W. JACKSON,
Consul.

PATRAS, *March 25, 1903.*

TAXES AND REGULATIONS FOR FOREIGN COMMERCIAL AGENTS.

Through the instrumentality of the German Union of Traveling Agents, a publication containing a summary of the main duties and privileges of commercial agents traveling in foreign countries was recently put upon the market. The following facts, taken from the book, will be of interest to American business men connected with the foreign trade:

DENMARK.

In Denmark traveling agents are required to pay an annual tax of 160 crowns (\$42.88). In case these agents represent more than one house, they are required to pay the full tax of 160 crowns for the first house and 80 crowns (\$21.44) for every other house represented. This tax must be paid immediately upon arrival at the

first custom-house of the country. An identification, both business and personal, is required, and for this purpose a notarially certified copy of the agent's power of attorney, visaed by some Danish consulate, is considered most practicable. The receipt given upon payment of the above-named tax must be presented for indorsement to the police and to the tax authorities of each locality in which the agent transacts business. Samples and patterns are subject to duty on entry into the country, but this is refunded upon departure. Evasions of the regulations are punishable by heavy money penalties.

FRANCE.

France requires nothing but a business passport, which properly identifies the bearer, both as to person and as the representative of a firm, and qualifies him to do business. There is no special tax. The duty on samples must be paid or proper security given therefor; upon departure from the country this is refunded or the security canceled.

ENGLAND.

England, according to the publication above referred to, as the classic land of free trade, throws no obstacles in the path of the foreign commercial traveler. He is welcome to come, welcome to stay, welcome to transact his business, and welcome to leave when he is done. No duties increase his expenses and no customs regulations delay his travel.

THE NETHERLANDS.

In the Netherlands, the commercial agent must report to the first custom-house which he comes to and have an industrial-tax receipt made out in his name (*billet van de bedryfs-belasting*), at a cost of 15 gulden (\$6). A transit pass (no fee) must be applied for, to accompany samples. These are separately labeled and entered, and as security for their return, or for the payment of the full duty in case they are sold in the country, a deposit of 25 per cent of their market value is required. In case any samples are sold, the regular duty must be paid upon the whole lot.

NORWAY.

Norway prescribes the issuance of a trade pass good for thirty days and costing 100 crowns (\$26.80). In every locality where business is to be transacted this pass must be presented to the police authorities to be visaed and indorsed. In the absence of such certification, a "sojourn book" is required. Full duties must be paid on all samples entered, but these are refunded on leaving the country, if proper evidence can be presented that the samples were

originally entered and appraised. Violations of the regulations are punishable by a fine ranging from 100 to 500 crowns (\$26.80 to \$184).

AUSTRIA.

In Austria, all traveling agents who can produce proper trade licenses and identifications are admitted to the country without payment of any duty, though samples sold in the country are dutiable when the agent leaves; nor are the agents subject to any other tax. Commercial agents also enjoy preferential baggage rates on the Austrian railroads, if they can produce a trade or identification card issued by the Austrian authorities. The rates in such cases are 2 heller (0.2 cent) per 10 kilograms (22 pounds) for every kilometer (0.62137 mile) traveled.

SWEDEN AND NORWAY.

In Sweden, as in Norway, the agent is required to take out a trade pass, which costs 100 crowns (\$26.80) and is valid for thirty days. A receipt for this tax must be produced at all places where business is to be transacted. Inability to produce such a receipt subjects the agent to a fine of from \$26.80 to \$184. The regulations are said to be most stringently enforced, and their closest observance is advised. On entering samples, the regular duty must be paid; upon departure, this duty is refunded, providing all samples entered can be produced.

SWITZERLAND.

In Switzerland, a business passport showing qualifications to engage in the trade, and serving as identification, is alone required. Upon presentation of this passport to the Swiss authorities, a special passport is issued by them—free of charge—which is sufficient for all trade purposes in the country. No duty is imposed upon samples, provided their full identity can be established.

RUSSIA.

In Russia, a Government and property tax of 150 rubles (\$77.25) is imposed in case of the establishment of a commercial house, and in addition a communal tax of 45 rubles (\$23.17). In the case of single commercial agents, a trade tax of 50 rubles (\$25.75) is imposed, and a communal tax of 10 rubles (\$5.15) in addition. The Russian regulations respecting foreign commercial agents are very strongly prejudicial to Jews. Agents or commercial houses of this nationality are required to pay, instead of a Government tax of 150 rubles as given above, a tax of 500 rubles (\$257.50) in addition to the communal tax. These taxes are paid against a receipt, which is valid until January of the next year and is sewed onto the traveler's general passport. A trade or business pass is also required,

showing that the agent possesses full power to represent the firm. If the head of a commercial house comes to Russia and opens up trade, he is subject to a tax of 150 rubles (\$77.25) in case he establishes no permanent offices, magazines, or stock rooms. In case he does establish permanent offices, he is required to pay a tax of 500 rubles (\$257.50) if he conducts a wholesale business and 450 rubles (\$231.75) if he carries on a retail trade. Jews are required to pay the full tax of 500 rubles in either case.

CHEMNITZ, *March 27, 1903.*

J. F. MONAGHAN,
Consul.

ZINC INDUSTRY IN EUROPE.

In compliance with the request of a zinc corporation of the United States, consular officers in certain countries were instructed, November 5, 1902, to report upon the production and consumption of zinc in their respective districts. The answers received* follow:

AUSTRIA.

MINES.

Zinc ore is mined in almost all the provinces of Austria, and, according to the official returns, the chief participants in the total output during the year 1901 were: Bohemia, 3,090 tons; Styria, 2,725 tons; Carinthia, 22,845 tons; Tyrol, 29,160 tons; and Galicia, 4,760 tons.

Among the principal mining properties in Bohemia is that owned by the Erste Böhmisches Zinkhütten und Bergbau Gesellschaft, with works at Mies, Mirklin, and Wrbitz. This establishment produced about 2,953 tons of ore in 1901, the bulk of which went to Germany. In Styria the chief ore producer is the Märkisch-Westfälischer Bergwerk Verein, owning mines at Deutsch Feistritz, Guggenbach, Rabenstein, and Übelbach. This undertaking is partly in the hands of German proprietors, and in 1901 the quantity exported to the German Empire by this company was 2,725 tons. In Carinthia there are two important mining properties, the one owned by the family of the Count von Henkel-Donnersmark, situated at Raibl and Wolfsberg, and the other at Raibl, belonging to the State. Of these, the former turned out about 11,050 tons and the latter 6,695 tons. Another large zinc-mining enterprise in Carinthia is the Bleiberg Bergwerke Union Actien Gesellschaft, a limited-liability company with works at Bleiberg-Kreut, Windisch-Blieberg, Eisenkappel, Feistritz, and Meiss Schwarzenbach, and an administrative bureau at Klagenfurth.

*ADVANCE SHEETS have been sent the inquirer.

The output of the various mines operated by this company aggregated 38,120 tons during the year 1901, and was mainly exported to Germany and Belgium.

The principal zinc mines in the Tyrol are situated at Klausen and Schneeberg. They are State property, but there are also zinc mines at Silberleiten, Nagelseekahr, Innst, and Roncegno belonging to private individuals. The product of these latter, however, is insignificant.

SMELTERIES.

As regards zinc smelteries, Austria is not numerously provided. There is one in Bohemia in connection with the Erste Böhmsche Zuekhütten und Bergbau Gesellschaft, which mines and smelts its own ore. There is also a zinc smeltery at Cilli, in Styria, the property of the State, which obtains its ore supplies from Raibl (Carinthia), Schneeberg, and Klausen (Tyrol), and turns out about 3,050 tons annually. But it is in Galicia that the largest quantity of ore is treated. The Galician zinc smelteries are located at Neidzieliska, near Szczakowa, at Kiesz, and at Trzebinia. They draw their supplies from local sources, and produced about 3,625 tons of metal in 1901.

EXPORTS.

The greater part of the zinc ore exported from Austria finds a market in Germany. At the time of writing the official figures dealing with the whole of the year 1902 are not accessible, but from the statistics already issued it can be estimated that, while the total quantity of Austrian zinc ore exported abroad was about 22,640 tons, no less than 22,540 tons were supplied to German buyers. Practically similar conditions prevail in respect to manufactured zinc, the total quantity of the metal leaving this country being approximately 1,870 tons, of which Germany took 1,525 tons.

IMPORTS.

Similarly, Germany occupies the first place as regards importation, for out of a total of 18,700 tons of zinc ore entering Austria last year 18,600 tons were supplied by Germany. The returns dealing with the entry of zinc from abroad also show that while the total amount was 3,250 tons, Germany contributed 1,970 tons, Great Britain about 246 tons, and British India about 935 tons.

TARIFF ON ZINC.

According to existing commercial treaties, the importation of zinc from Germany and Italy is free. In the case of other countries, there is a duty of about 48 cents gold per 220.46 pounds. No duty is levied on imported ore.

No special facilities are granted in the transportation of zinc, beyond the ordinary freight reductions conceded by some railway lines on all classes of raw metal.

VIENNA, *January 8, 1903.*

CARL BAILEY HURST,
Consul-General.

BELGIUM.

SMELTERIES.

There are in Belgium 12 zinc smelting and manufacturing establishments, producing (according to the last statistics published—in 1898) 119,671 tons (of 2,205 pounds) of metallic zinc of a total value of \$11,881,860 per annum. In that year, 291,977 tons of ore, 11,770 tons of by-products, consisting of various oxides, and 624,511 tons of coal were consumed by this industry in Belgium.

The following is a list of the 12 establishments referred to, together with the number of their furnaces and their production:

Owner.	Name of works and location.	Production.	Furnaces.
		<i>Tons.</i>	<i>Number.</i>
Société de la Vieille Montagne.....	Valentin-Cocq, at Hollogne aux Pierres.	24,397	69
Do.....	Angleur, at Angleur.....	16,270	36
Dumont & Freres, Société Anonyme...	Sart-de-Selles, at Selles.....	12,146	62
Société de la Nouvelle Montagne.....	Engis, at Engis.....	10,591	50
Austro-Belge, Société Anonyme.....	Corphalie, at Anthelt.....	10,179	60
Société de la Vieille Montagne.....	Flone, at Hermalleux-Huy.....	9,110	36
Société métallurgique de Boom.....	Boom, at Boom.....	7,450	36
Société métallurgique de Prayon.....	Prayon, at Foret.....	8,736	24
L. de Laminne.....	La Croix-Rouge, Anthelt.....	7,013	36
Compagnie d'Escombrera Bleyberg....	Bleyberg, at Montzen.....	5,406	117
Société des métaux et produits chimiques d'Overpelt.	Overpelt, at Overpelt.....	4,760	6
Société des fonderies et laminoirs de Biache St. Vaast.	Ougrée, at Ougrée.....	3,613	24

As will be seen by the above table, three of these works belong to the Société de la Vieille Montagne, which is said to be one of the strongest industrial establishments in the country. The others are the property of different companies.

The zinc works of the Vieille Montagne, known as Valentin-Cocq, at Hollogne-aux-Pierres, are said to be the largest in the world, hence the following brief description may prove of interest to readers:

There are 69 smelting furnaces of the type known as "Belgo-Silesian." These furnaces are two-sided, comprising each 108 crucibles—*i. e.*, 54 on each side, disposed in three rows of 18. The crucibles are oval in shape, measuring 1.4 meters (4 feet) in length, 0.168 meter (6.6 inches) in breadth, and 0.254 meter (9.9 inches) in height.

The furnaces are heated by means of longitudinal grates in the center, the flames rising vertically to the roof of the furnace and returning on either side, thus heating the crucibles on both sides from top to bottom. In each side of the furnace there are nine receptacles, each containing room for six crucibles in two vertical rows. These receptacles are divided horizontally into three compartments by cast-iron plates having an opening for the ashes from the crucibles, when cleaning. During this operation the receptacles are partially closed by rotary sheet-iron doors or shutters, which serve to shield the men from the heat radiating from the crucibles. These doors also serve to diminish the quantity of dust blowing into the sheds during the process of cleaning.

The sheds occupied by the furnaces have a total length of 640 meters (about 2,099 feet). The furnaces are all of practically the same dimensions, viz, height of roof from the ground, 2.3 meters (3.05 yards); width at the center, 5.5 meters (6 yards); length of two furnaces adjacent, 15 meters (16.3 yards).

The great size of these works, the existence of two or three parallel lines of sheds or galleries, the proximity of a veritable mountain of ashes, the rectangular disposition of the sheds, all have combined to render the ventilation most defective, especially in times of high wind. The company, however, spares no effort or expense in seeking to improve conditions in the plant. Numerous experiments have been made, with the result that a specially contrived roofing has been adopted, having a longitudinal opening surmounted by a skylight, besides other openings surmounted by a covering to prevent the entrance of rain. Finally, nine sheet-iron chimneys have been adapted to each furnace (one for each series of twelve crucibles), carrying the smoke above the roof.

In these chimneys there is a slide valve allowing the closing of the draft during the smelting process. This has been done at an extra cost of \$400 per furnace.

IMPORTS.

The sources of ore supply, with the quantities imported in 1898, were:

Country.	Quantity.	Country.	Quantity.
	<i>Tons.</i>		<i>Tons.</i>
Sardinia.....	59,118	Australia.....	15,787
France.....	48,101	Italy.....	12,072
Sweden.....	34,973	United States.....	6,536
Spain.....	34,930	England.....	5,737
Algeria.....	20,076	Tunis.....	3,122
Germany.....	17,552	Turkey.....	3,053
Greece.....	15,812	Austria.....	1,813

TARIFF ON ZINC.

The tariff levied on zinc by the Belgian customs is as follows:

Crude zinc.....	Free.
Zinc in a manufactured state.....	ad valorem... 10 per cent.

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *December 27, 1902.*

FRANCE.

Marseilles is a receiving and forwarding point for large quantities of zinc, but the manufacture of the metal is not carried on in this city to any extent, and information is very difficult indeed to secure.

PRICES.

There is a very considerable demand for imported zinc in bars, and information respecting the market can be obtained by intending exporters from M. Henri de Ravel, 33 Rue Sylvabelle, Marseilles. M. de Ravel advises me that the present price is from 45 to 46 francs per 100 kilograms (\$8.68 to \$8.87 per 220 pounds), these figures being unusually high, the ordinary prices running from 40 to 45 francs (\$7.72 to \$8.68) per 220 pounds. The local stock on hand is limited. M. de Ravel would wish to see samples before doing anything. The zinc should be pure, and should not contain lead or other metals. Sheet zinc is quoted for export at present at 63.50 francs per 100 kilograms (\$12.25 per 220 pounds). Information of value might also be obtained from M. F. Gondois, Rue Sainte, 51, Marseilles. He is one of the largest dealers in metals of various kinds in this city, but at present does very little in zinc.

FRENCH AND FOREIGN PRODUCTION.

The domestic production of zinc is very considerable, and shows a tendency to increase, as the following figures—obtained from the latest sources available in this country—will show:

Country.	1895.	1900.
	<i>Tons.</i>	<i>Tons.</i>
France and Algeria.....	738,000	97,300
Germany.....	706,400	639,200
Italy.....	121,200	*150,000
United States.....	74,000	112,000
Sweden and Norway.....	31,300	61,000
Spain.....	54,000	87,000
Russia.....	57,000	
Austria-Hungary.....	26,000	*38,300
Greece.....	24,000	18,500
Great Britain.....	17,700	24,600
Belgium.....	12,200	10,200

* For the year 1899.

The largest producers of zinc in this country seem to be the Société Anonyme des Mines et Fonderies de Zinc de la Vieille Montagne, 19 Rue Richer, Paris. This company mines ore and manufactures its own product. My impression is that the principal point of production of this society is at Bray-et-Lu, in the Department of the Seine-et-Oise. I annex the statistical position of zinc in Marseilles and in all France, and also a long list of buyers or manufacturers of zinc in its various forms, anyone of whom I judge would be more or less interested in offers from the United States. I have endeavored to eliminate from the list the addresses of miners of zinc ore.

TARIFF ON ZINC.

The French tariff provides for the free entry of zinc ore, pigs, bars, plates, and old zinc. Sheet zinc is dutiable at the rate of 4 francs per 100 kilograms (77 cents per 220 pounds). It is scarcely necessary to add that the transportation facilities at Marseilles are the best in France, there being frequent and regular steamship communication not only between New York and Marseilles, but between this port and practically every part of the world.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *December 9, 1902.*

Imports and exports at Marseilles.

Description.	Imports.		Exports.	
	1901.	1902.*	1901.	1902.*
	Tons.	Tons.	Tons.	Tons.
Ore	1.6	5.1	7,552.2	5,025.8
Pigs, bars, and slabs.....	142.7	427.9	350.4	419.8
Rolled	1		489.6	420.4
Scrap, filings, etc.....	348.2	472.8		207.6

NOTE.—Of imports of ore, 80 per cent comes from Spain, Algeria, and Tunis, the largest proportion from Algeria. Of imports of pigs, bars, etc., 80 per cent is from Spain, Italy, and Greece, Spain coming first with, say, 35 per cent; Italy, 30 per cent; and Greece, 15 per cent.

* First 10 months.

Imports and exports for all France.

Country.	1901.	
	Imports.	Exports.
	Tons.	Tons.
<i>Ore.</i>		
Spain	26,000	
Italy	28,000	
Sweden	5,000	
Belgium		51,600

Imports and exports for all France—Continued.

Country.	1901.	
	Imports.	Exports.
<i>Pigs, ingots, etc.</i>	<i>Tons.</i>	<i>Tons.</i>
Belgium	24,000	3,000
Spain	2,500	.....
United States.....	2,500	.....
Greece	3,000	.....
Great Britain.....	.....	4,000
<i>Rolled.</i>		
Belgium	440	2,000
Holland.....	31	.....
Switzerland.....	10	1,000

Total for first 10 months of 1901 and 1902.

Description.	Imports.		Exports.	
	1901.	1902.	1901.	1902.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Ore	68,099	54,891	31,801	34,733
Pigs	24,372	28,566	7,422	4,986
Rolled	335	180	5,624	8,880
Scrap	*1,164	*1,737	586	926

NOTE.—These figures have been taken from two different sets of official reports. I am unable to reconcile the slight discrepancy.

* Germany, 45 per cent; Belgium, 35 per cent; balance, England and Algeria.

ADDRESSES OF MANUFACTURERS AND BUYERS.

F. Brosette, 8 Place Vendome, Lyons.
M. Gautier, 20 Rue de Marseille, Lyons.
J. Peillon, 92 Port-Dieu, Lyons.
Nicolas frères, 3 Cours de la Liberté, Lyons.
Guttin, 7 Saint Alexandre, Lyons.
Chatelain, 43 Cours Charles Richard, Lyons.
Boussat, 12 Passet, Lyons.
Fabre, 10 Jean de Tournes, Lyons.
Guicherd, 75 Rue Boileau, Lyons.
Pigeat, 92 Cours, Gambetta, Lyons.
C. Tabard, 10 Belle Cordière, Lyons.
Tartarin, 9 Sergent-Blandau, Lyons.
Villiot, 70 Chemin Gerland, Lyons.
Virrart, Clair, et Marmonier, 22 Port-Dieu, Lyons.
Les fils de J. Four, Macon, Saône et Loire.
G. Auscher, Nancy, Meurthe et Moselle.
G. Guito, 4 Rue Dubreil, Nantes, Loire Inferieure.
Comptoir de Métaux, Boulevard d'Orléans, Rouen.
M. Bloch, St. Amand les Eaux-Nord, Seine Inferieure.
Chavanne Brun frères, St. Chamond, Loire.
Léon Delmas, 45 Faubourg St. Antoine, Paris.
Emile Grimoult, Villedier les Poëles, Manche.
Bidault, Victor, 13 Rue Lakanal, Paris-Grenelle.
Bigillion, Maurice, 23 Rue de la Chaussée d'Antin, Paris.

Bridault, E., 27 Rue de la Huchette, Paris.
 Fonderies et Laminiers de Biache St. Vast, 28 Rue St. Paul, Paris.
 Giblert, 20 Rue Ste. Croix de la Bretonnerie, Paris.
 Hubin Félix, 14 Rue de Turenne, Paris.
 Benoist, 13 Avenue d'Italie, Paris.
 Duprat, Vve. et Cie., 54 Rue Chateau-Landon, Paris.
 Lefebvre, P., 84 Rue Amelot, Paris.
 Peytavi, 88 Rue de la Roquette, Paris.
 Durand Frères, 8 Rue St. Albin, Paris.
 Barbas, 85 Boulevard de Strasbourg, Paris.
 Bergeron, 111 Rue St. Antoine, Paris.
 Bertrams, Henri, 60 Rue St. Maur, Paris.
 Gautier et Louis, 36 Rue St. Lazare, Paris.
 Grados, 37 Avenue St. Mandé, Paris.
 Jansonie et Seguin, 2 Quai de la Seine, Paris.
 Lebouef, Camille, 37 Avenue de St. Mandé, Paris.
 Monduit fils, 31 Rue Poncelet, Paris.
 Perignon, Vinet et Cie., 25 Rue de Chazelles, Paris.
 Perreault, Jules, 3 Rue d'Odessa, Paris.
 Thuillier frères, 20 Rue de Paradis, Paris.
 Bombled, 94 Rue de Montreuil, Paris.
 Roy, E., 11 Boulevard Richard-Lenoir, Paris.

GERMANY.

MINES.

The native zinc ores of Germany come from eastern Silesia, the Rheinlands, and Saxony, and the output of 1901 was divided as follows with respect to origin:

Description.	Quantity.	Value.
	<i>Tons.</i>	
From the mining district of Breslau.....	520,099	\$3,002,746
From the mining district of Bonn.....	105,406	1,694,560
All other mining districts.....	21,991	419,070
Total.....	647,496	5,116,376

IMPORTS AND EXPORTS.

Besides this native product, there were imported from various countries 75,503 tons of zinc ores; the largest item, 24,046 tons, being contributed by Austria-Hungary, 6,954 tons from Spain, 7,493 tons from Sweden, 6,527 tons from Italy, 9,540 tons from the United States, and the remainder from Tunis, Australia, Greece, Algeria, and Belgium. The official statistics show, somewhat curiously, that during the same year Germany exported 41,002 tons of zinc ores, of which 21,860 tons went to Belgium and 18,225 tons to Austria-Hungary.

From this supply of native and imported ores, in 1901 there were produced 166,283 metric tons of block zinc, valued at \$13,039,206.

From Belgium, France, Great Britain, the Netherlands, and Austria, Germany imported during the same period 20,180 tons of raw zinc and exported 53,312 tons.

CONSUMPTION.

The remainder—apart from the left-over supply at the end of the year—was used for the various manufactures of zinc, rolled sheets, cast and pressed ornaments, zinc white, etc., all of which branches of industry are largely developed in Germany. The consumption of raw zinc, which amounted to 93,575 tons in 1893, rose steadily to 130,295 tons in 1899, the last year for which exact statistics are available.

Among the principal consumers of zinc in Germany are the following firms and companies:

Firm or company.	Location.	Description.
J. H. Dudeck's Sons.....	Bernsdorf	Zinc white (colors).
Antonienhütte	Hüttenort bei Kattowitz.....	Do.
Wilhelm Grillo.....	Oberhausen	Do.
Schmidt & Bau.....	Cologne	Do.
Lübecke & Co.....	Lassen bei Breslau.....	Do.
Reiner, Pelzer & Co.....	Cologne-Ehrenfeld.....	Zinc ornaments, etc.
Diederichs & Brettmann.....	Barmen	Do.
Philip Fahnenreiber.....	Düren	Do.
Fischer & Sohler.....	Mannheim.....	Do.
Carl Schoenenberger.....	Heidelberg.....	Do.
Kadow & Riese.....	Berlin	Do.
Hubert Lahaye.....	Barmen	Do.
Geo. Victor Lynen.....	Eschweiler	Do.
Friedrich Krasser.....	Munich	Do.
Söhlmann Brothers.....	Hanover	Do.
Kraus, Walchenbach & Peltzer.....	Stolberg, Rheinland.....	Do.
Strümpfer & Brandner.....	Berlin	Do.
Gladenbeck & Son.....	Friedrichshagen bei Berlin.....	Do.
Paul Opitz.....	Berlin	Do.

SMELTERIES.

Among the leading zinc smelters of Germany are:

Gustav Baerwald & Co., Berlin.
 Antonienhütte, Hüttenort bei Kattowitz.
 Weisskopf & Co., Barmen.
 Barme Brothers, Barmen.
 S. Joachimsthal, Halle a. d. Saale.
 Hohenloehütte, Bettlow bei Kattowitz.

TARIFF ON ZINC.

Zinc ores and raw zinc are free of duty when imported into Germany under the present tariff law; sheet zinc bears a nominal duty of 3 marks (71 cents) per 100 kilograms (220 pounds); coarse manufactures of zinc are dutiable at 6 marks (\$1.42); and fine manufactures of the same metal at 24 marks (\$5.71) per 100 kilograms.

FRANK H. MASON,
Consul-General.

BERLIN, December 6, 1902.

GREECE.

This consulate is informed that there are no zinc smelters or manufacturers of metallic zinc in Greece.

The tariff on imports of zinc into Greece is 10 gold drachmas or 13.23 paper drachmas (\$1.93) per 100 okes (284 pounds).

DANIEL E. MCGINLEY,

ATHENS, *December 27, 1902.*

Consul.

ITALY.

The zinc industry in Italy is practically confined to two centers, viz, the district of Iglesias, which comprises the mining districts of Cagliari, Iglesias, and Sassari, and the district of Milan, which comprises the mining districts of Bergamo, Brescia, and Lecco.

The number of new and renewed concessions (including permissions for research) in the year 1901 was as follows:

For—	Concessions.	District.
	<i>Number.</i>	
Zinc.....	3	Milan.
Lead and zinc.....	2	Carrara.
Do	4	Milan.
Do	39	Iglesias.
Lead, zinc, and copper.....	41	Dó.
Lead, zinc, copper, and antimony.....	6	Do.
Lead, zinc, copper, and manganese.....	7	Do.
Lead, zinc, and manganese.....	5	Do.
Lead, zinc, copper, nickel, and cobalt.....	13	Do.
Lead, zinc, copper, and arsenic.....	2	Do.
Total.....	122	

There are few, if any, mines in Sardinia which produce zinc alone, lead and zinc being usually found together. The production of blende is on the increase. Some of the mines which had been considered exhausted have, as a result of renewed explorations, been found to contain beds, which will insure a good supply for the future. Other mines are giving a greater yield than heretofore, since the introduction of electric plants in place of the former inadequate steam plants.

PRICES.

The market value of the zinc metal has, however, depreciated during the last few years. In July, 1900, the price of metallic zinc was \$9.90 per quintal (220 pounds); in December, 1901, it was as low as \$8.08 per quintal. The estimated value of zinc ore was then \$18.27 per ton.

MINES.

In the district of Cagliari, the number of tons of zinc and lead blende excavated in the year 1901 was as follows:

From 89 mines and explorations—

Lead produced.....	tons...	41, 439
Zinc produced.....	do....	109, 710
Value of zinc per ton.....		\$18. 27
Total value of zinc.....		\$2, 004, 401. 70
Number of miners engaged on excavation of zinc and lead blende...		6, 700
Number of outside hands.....		6, 696
Total.....		13, 396

The motor power used in these mines is:

	Horsepower.
For 7 hydraulic plants.....	168
For 79 steam plants.....	3, 046
For 1 petroleum plant..	2
Total.....	3, 216

In the district of Sassari, the figures are:

Number of mines of zinc and lead.....	4
Lead produced.....	tons... 1, 462
Zinc produced.....	do.... 6, 976
Value of zinc per ton.....	\$14. 47
Total value of zinc.....	\$100, 942. 72
Number of miners.....	174
Number of outside hands.....	158
Total.....	332
For 6 steam plants.....	horsepower... 179

The augmented production in the season 1900-1901, in comparison with 1899-1900, was 5,176 tons. This result was obtained by the increased yield of blende, being 19,562 tons against 13,170 tons of the previous season. The calamine yield, however, showed a decrease of 1,216 tons, the figures of the season 1900-1901 being 97,124 tons, as against 98,340 tons of 1899-1900.

Owing to the decrease in price of zinc ore, the diminution in value of the season's production was \$564,279.

The mines in the district of Milan are in the provinces of Bergamo and Brescia. In the province of Bergamo there are at present 16 registered mines and four concessions for research. The number of people engaged is 1,827. The quantity of zinc ore mined in the year 1901 was 17,253 tons, the estimated value of which was \$265,006.08, being \$15.36 per ton. The number of electric and hydraulic motors was six, with a total horsepower of 198, and one steam or gas engine of 12 horsepower.

In the district of Brescia there is but one mine and one concession

for research, both engaged in the excavation of zinc and lead. The number of hands engaged is 58. The quantity of zinc ore mined in 1901 was 282 tons, but it was of a less value than that of Bergamo, being estimated at only \$2.58 per ton, making a total value of \$727.56. There was only one motor engaged, which was of 75 horsepower.

EXPORTS AND IMPORTS.

The quantities and values of zinc ore exported in the years 1900 and 1901 were:

Year.	Tons.	Value per ton.	Total value.
1900.....	111,870	\$21.23	\$2,375,000
1901.....	103,080	19.30	1,988,286
Decrease in 1901.....	8,850	.....	386,714

The quantities and values of zinc ore imported were:

Year.	Tons.	Value per ton.	Total value.
1900.....	85	\$21.23	\$1,804.55
1901.....	23	19.30	443.90
Decrease in 1901.....	62	.....	1,360.65

The exports were shipped to the countries named in the following quantities:

	Tons.
Belgium	83,584
England.....	1,980
France.....	27,948
Germany.....	2,500
Total.....	116,012

The exportations of metallic zinc in blocks or pigs were:

Year.	Tons.	Value per ton.	Total value.
1900.....	359	\$104.22	\$37,415.00
1901.....	349	84.92	29,637.08
Decrease in 1901.....	10	.....	7,777.92

The exportations of metallic zinc sheets were:

Year.	Tons.	Value per ton.	Total value.
1900.....	4.9	\$123.52	\$605.24
1901.....	4.3	104.22	448.14
Decrease in 1901.....	.6	.....	157.10

The importations of zinc blocks or pigs were:

Year.	Tons.	Value per ton.	Total value.
1900.....	3,627	\$104.22	\$378,005.04
1901.....	3,991	84.92	338,915.72
Increase in 1901.....	364		
Decrease in 1901.....			39,090.22

The importations of zinc sheets were:

Year.	Tons.	Value per ton.	Total value.
1900.....	3,323	\$123.52	\$410,456.06
1901.....	3,859	104.22	402,184.98
Increase in 1901.....	536		
Decrease in 1901.....			8,271.98

TARIFF ON ZINC.

The duties on imports are:

Per ton.

Sheets.....	\$7. 72
Blocks ..	Free.
Ore	Free.

PRODUCTION.

I submit a comparison of production of zinc ore in Italy with that of other countries.

Country.	Year.	Tons.	Value.
Italy.....	1901	135,784	\$2,387,283.19
Austria.....	1900	38,242	462,004.30
Belgium.....	1900	8,715	106,792.69
France and Algeria.....	1900	96,789	1,475,030.00
Great Britain.....	1900	25,070	475,093.23
Prussia.....	1901	644,504	5,089,301.34
Spain.....	1901	119,708	777,601.82
Hungary	1899	1,197	5,621.51

The production of zinc blocks or pigs was:

Country.	Year.	Tons.	Value.
Italy.....	1901	511	\$46,987.97
Austria.....	1900	6,741	641,277.24
Belgium.....	1900	119,317	11,508,811.95
France and Algeria.....	1900	36,305	3,444,735.41
Great Britain.....	1900	9,211	917,871.52
Prussia.....	1901	166,223	13,042,791.19
Russia.....	1897	5,868	548,971.13
Spain.....	1901	5,354	846,787.50
United States.....	1901	127,754	11,262,830.94

NOTE.—The above figures have been obtained from the official "Rivista del Serrizio Minerario nel 1901," published in 1902.

* Produced from indigenous ore.

PRODUCERS AND SMELTERS.

I give below names and addresses:

Cagliari, Sardinia.

Società delle Miniere di Monteponi Fonderia di Zinco.
Società delle Miniere di Gennamari.
Società delle Miniere di Malfidano.
Società delle Miniere di San Benedetto.
Società delle Miniere Seddas Moddizzi.

Iglesias, Sardinia.

Tacconis Sarrabus (management office at Genoa).
Società Sovvenzioné ed Imprese di Miniere (management office at Genoa).
Forest and Mining Company, Limited, Miniere Marganai.
Creditori P. Christin & Co.
Société Vieille Montagne.
Società Anonima Monteponi.

Lecco, Province of Milan.

The United Mines Company, Limited.
The Camisolo Mine, Limited.

Bergamo, Province of Milan.

The English Crown Spelter Company, Limited.
Società Austro-Belgo.

Voltterra, Province of Pisa.

Società Anonima Inglese Miniere di Zinco.

WM. JARVIS,
Consul.

MILAN, *January 21, 1903.*

RUSSIA.

All the Russian zinc works in actual operation are located in Poland. Deposits of zinc ores are scattered in various parts of the Empire, viz, in the south of Russia, the Caucasus, and Finland, but no work is done in those districts. Zinc blende occurs in large quantities in the Caucasus in association with silver-lead ore. The blende is not yet reduced on the spot, but is exported to Great Britain, Belgium, and Germany.

SMELTERIES.

The principal zinc smelters and manufacturers of metallic zinc are:

The Bendinsk Works of the Franco-Russian Mining Company; director, Joseph J. Skibinsky, Petrokov Government, Dombrova, on the Warsaw-Vienna Railroad.

The Paulina and the Emma works of the Sosnovitzky Company, Petrokov Government; director, Marquis de Vassal, Vladimirsky street 6, Warsaw.

Another smelting concern, called the Zadonsk Works, belongs to the Alagir Company, St. Petersburg, but the product is considered insignificant.

In 1901, new smelting works, called the Constantin Works, were put into operation; these belong to the Franco-Russian Mining Company.

The entire ore supply comes from the mines in Poland belonging to the above companies. The ores are not very rich and yield only from 8 to 15 per cent of the metal. Smelting zinc ores is carried on in the Bendinsk, Paulina, and Constantin works. In the Emma Works, sheet zinc and zinc white (permanent white) is manufactured.

PRODUCTION.

The quantity of zinc yielded by the Polish mines—from reliable information obtained from the Imperial Department of Mines—was 4,068,063 poods (66,147.3 tons) of zinc ore in 1899, 3,864,354 poods (62,834.9 tons) in 1900, and 3,496,233 poods (56,849.3 tons) in 1901.

The production of zinc from these ores was:

Year.	Metallic zinc.		Sheet zinc.		White zinc.	
	Poods.	Tons.	Poods.	Tons.	Poods.	Tons.
<i>Bendinsk works.</i>						
1898.....	194,274	3,158.7				
1899.....	251,635	4,091.6				
1900.....	223,410	3,632.6				
<i>Paulina Works.</i>						
1898.....	151,520	2,463.7				
1899.....	134,598	2,188.5				
1900.....	140,608	2,286.5				
1901.....	155,362	2,526.2				
<i>Constantin Works.</i>						
1901.....	51,467	836.8				
<i>Emma Works.</i>						
1898.....			193,362	3,144	73,602	1,196.9
1899.....			206,280	3,354	47,826	777.6
1900.....			177,936	2,893.2	76,869	1,249.9
1901.....			203,763	3,312.2	35,968	584.8

The above figures show that the production of metallic zinc in Russia is not very important; this is partly due to the poor quality of the ores and partly to the keen competition of the Silesian (German) zinc. The Silesian ore is considered superior to the Polish; the Silesian manufacturers control large capital, and, being favored by more advantageous economic conditions, are able to lower the prices of their product.

IMPORTS.

Russia imports zinc principally from Germany, Belgium, and Holland, and the quantity entered during 1898 was 10,840 tons. Zinc blende is imported from Silesia. Zinc ore is not exported, all

the ore mined being smelted in this country. A portion of the zinc produced in Poland goes to the interior of Russia in the raw state and is chiefly used for manufacture of brass. The remainder is rolled into sheets at the works in Poland.

TARIFF ON ZINC.

The duty on zinc is: In blocks, per pood (36.112 pounds), 75 kopecks (38.6 cents); in sheets, polished, 1.50 rubles (77.3 cents) per pood; in rods, 75 kopecks (38.6 cents) per pood; in powder, 75 kopecks (38.6 cents) per pood.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *January 14, 1903.*

ZINC INDUSTRY IN ALGERIA.*

Algeria is a producer, rather than a consumer, of zinc. There are no smelteries or manufactories of metallic zinc, consequently there is no demand for ore. The only importation of zinc is in a manufactured state (principally rolled), with the exception of a certain quantity of ore coming from Tunis for shipment from one of the East Algerian ports.

PRODUCTION.

There are numerous deposits of zinc ore, which may be classed in two groups. In the first of these, blende is the principal mineral, calamine being found only at certain points of the croppings. This group is found only in stratified marl, loam, or other calcareous formations. It exists chiefly in the province of Algiers. It is also found mixed with the débris of the surrounding formations and forming a gap, of which it is the cement. Such are the mines of Guerrauma, Sakamody, R'arbau, and Nador-Chaïr. In the second group, calamine predominates—sometimes pure, sometimes containing more or less iron and lead, mixed with calcareous deposits of different periods. This class of mine has had the attention of prospectors in the department of Constantine, where chalky formations are the rule.

PRINCIPAL MINES.

Department of Alger.—Ouarensis, Sakamody, Guerrouma, and Nador-Chaïr.

Department of Oran.—Mazès and Djebel Massen.

* Report made in answer to instruction of November 5, 1902. See page 251 of this issue of CONSULAR REPORTS.

Department of Constantine.—The names of the mines and the annual output are:

	Tons.
Hammam (Nador).....	15,000
Sakiet Sidi Youssef.....	3,300
Compagnie Royale Asturienne.....	2,000
Compagnie Minière Tunissienne.....	2,000
Ban Kadis.....	1,000
Ban Jaber.....	1,000
D'jebel D'jedda.....	700

Practically none of the mines mentioned are being worked to their full capacity, and the actual value of the mines or the extent of ore deposits is not known.

There are seventy mines (so called) in this Department, but most are merely discoveries of surface indications, upon which concessions to explore have been granted.

It is impossible to give the names of the companies (there are no individual owners) operating the zinc mines. Some of the companies are French and some Belgian, but they can all be reached by addressing "Monsieur le Directeur des Mines" of the names given in the above list, adding the Department and country—as for example, "Monsieur le Directeur des Mines de Sakamody, Department d'Alger, Algeria."

EXPORTS.

It is equally impossible to give the annual production of individual mines, but the total exportation of zinc ore from Algeria during 1901 amounted to about 40,000 tons, which must closely approximate the production. The destination of this exportation was as follows:

	Tons.
Belgium.....	32,000
France	7,500
Germany	1,000

TARIFF ON ZINC.

The tariff on practically everything which enters Algeria is the same as in France. With reference to zinc, it is as follows:

Bars	Free.
Filings and scraps.....	Free.
Rolled and sheet.....per 100 kilograms (220 pounds)...	\$0. 772

TRANSPORTATION.

There is no direct line from New York to Algiers. The Dutch Levant Line has a bimonthly service which touches at Algiers on the return trip. Doubtless, this line would accept freights from

New York to Algiers if offered in sufficient quantities. Cheap rates can be had via Liverpool, Havre, Marseilles, and other European ports. In this connection, it may be well to note that if all or even one-half of the American goods which are brought into Algeria were sent direct instead of by way of European ports, it would make a direct service a paying enterprise, and at the same time would show the actual value of trade between the two countries. At present most of our exports are credited to the European ports of transshipment.

DANIEL S. KIDDER,
Consul.

ALGIERS, *January 20, 1903.*

COMMERCIAL MUSEUM AT MALTA.

A museum was opened here about sixteen years ago, under the auspices of the Austro-Hungarian consulate. In this museum were displayed samples of goods from the above country, and several of the lines have since become standard here. Especially was this so in the matter of bent-wood furniture; to-day there is probably no house in these islands not provided with Austrian bent-wood furniture. Within the last three years American manufactured goods have made their appearance here, but the demand has not been as large as if our merchants had been more enterprising. During this period there has been a falling off in Austrian manufactures, and it is probably to check this that the Austro-Hungarian consul-general at this port is about to open another museum. He has given, for a period of twelve months, a house—of which he is the owner—to be devoted wholly to the display of samples of goods from his country. The industrial classes of Austria-Hungary will be invited to forward such specialties for exhibition as may interest the people here. Goods are to be brought and returned free of freight charges by the Adria Steamship Company, of which line the consul-general is also local agent. The customs authorities will permit goods intended for the exhibition to be admitted free of duties, under proper restrictions. The plan is to display samples and provide information as to addresses of manufacturers, trade prices, and names of local agents, should there be any, in Malta. There is no reason why American manufacturers should not follow this plan. I have no house at my disposal to devote to the purpose, like my wealthy colleague, but premises could be secured in a much better location than those to be occupied by the Austro-Hungarian exhibition, and the rental would be reasonable. I believe that if a few of our manufacturers would join in contributing to a fund to cover expenses—which would not be heavy—and send samples of goods that Malta could

use, there would be good returns. The New York and Mediterranean Steamship Company now runs vessels direct from New York to Malta, and satisfactory arrangements as to freight rates could doubtless be made.

Among the classes of goods that might be sent, I may mention shelf hardware, carpenters' tools, food stuffs, dry goods, soaps, men's furnishings, lamp goods, stationery, pianos, musical instruments for band or orchestra, and house fittings. It would be useless to send most lines of machinery; there is, however, a slight demand for woodworking machinery to be run by foot power, and I believe that bookbinding machines would attract attention. Lately large numbers of iron bedsteads from Birmingham, England, have found ready sale.

During the past four years the imports of our goods have risen in value from the end of a list of twenty exporting countries to fifth in position, and, with a little enterprise, there seems to be no reason why we can not mount still higher. Banking facilities are ample. The people here have an excellent opinion of American goods, and the market is prepared for them. To be sure, Malta is very small and its demands are relatively limited, but the business of most houses is made up of small things as well as of large ones, and Malta can at least prove a factor in the trade.

JOHN H. GROUT,
Consul.

VALLETTA, *March 9, 1903.*

MINING REGULATIONS OF GERMAN EAST AFRICA.

Consul Mason Mitchell sends from Zanzibar, January 30, 1903, translation of the mining rules and regulations of German East Africa, in response to inquiries from the United States for information upon this subject. In transmitting the inclosure to the consul the acting governor says:

Those of your countrymen who intend in good faith to prospect and mine in this protectorate will have the protection of the government in their undertakings.

I would remark that by an order of the chancellor (of November 27, 1900) the fees and taxes for mining have been reduced generally one-half, up to December 31, 1903.

Before the mining regulations came into force, the chancellor had granted to the Frangi Syndicate extensive mining permits in certain territories, from which other parties are excluded. These concessions are still in force. Furthermore, the mining of minerals in navigable rivers was reserved to the government by an order of the chancellor of March 5, 1900. This order was found necessary, as the provisions of the mining regulations did not prove to be adapted to the granting of mining rights for alluvial gold by dredging in rivers.

Until sufficient experience has been gained for a general legal regulation, this deficiency will be made up by the government granting special licenses for the mining of certain minerals in the rivers.

As you know, up to this time practical mining in this protectorate has not gained great importance. I am of the opinion that this must be attributed to the fact that the few persons who have devoted themselves to prospecting did not have sufficient knowledge of the facts or sufficient energy to overcome the difficulties of transport usual in the Tropics. Notwithstanding this, a production of garnets of some importance has developed in the south of this protectorate and of mica in the Mugurn Mountains.

Further, the proceedings of the above-mentioned syndicate have proved beyond doubt that deposits of gold exist in the middle and north of this protectorate which are fully worth the attention of experienced and energetic speculators.

GERMAN EAST AFRICA MINING REGULATIONS, 1898.

I.—GENERAL RULES.

SECTION 1. No landowner shall have the right to dispose of the minerals herein-after mentioned. The provisions of these regulations shall apply to the search for, and the extraction of, the following minerals:

A.—Precious minerals.

1. Gold, silver, and platina (native and ore).
2. Precious stones.

B.—Ordinary minerals.

1. All metals, with the exception of the above-mentioned ones (native and ore).
2. Coal, lignite, and graphite.
3. Mica and semiprecious stones.

From the operation of these regulations shall be exempt the extraction of iron, copper, and graphite by natives on their own account in open working.

SEC. 2. The search for minerals and their extraction on account of the colony or the Empire are also subjected to the provisions of these regulations.

SEC. 3. Any person not residing in the colony shall be bound to appoint a person having his continual residence in the colony as his representative for any business connected with prospecting and mining, and shall have to notify the mining department of the appointment of this person.

For companies having no domicile in the colony and for partners of an association whereof the representation is not regulated by law the same regulation shall apply.

The mining department shall be competent to appoint a representative, should this regulation not be complied with.

SEC. 4. Against the decisions of the officers as regards the provisions of these regulations objection can be made if the making of objections is not specially excluded.

Any objection must be lodged with the officer or the office that has given the contested decision within three months, in default whereof the privilege of objection shall expire.

SEC. 5. All official publications prescribed by these regulations must be made in the customary manner, and at all events by posting them on the official board of the local authority.

II.—PROSPECTING.

A.—General rules.

SEC. 6. Any person, by following the rules hereinafter mentioned, shall be entitled to search for the minerals named in section 1. Any territories which the imperial chancellor has reserved, or shall from time to time by order under his

handwriting reserve to the colony or the Empire, or has assigned or shall assign to a third person or persons, in accordance with a special agreement, shall be excluded from the operation of these regulations. The names of such territories shall be officially published.

SEC. 7. It is not allowed to prospect on public roads and places or on burial grounds and graves. Prospecting will also be prohibited on other grounds if, according to the decision of the mining department, important reasons exist for such prohibition.

To prospect below or within 50 meters (54.5 yards) of any building or of fences of any landed property will not be allowed unless the landowner has given his permission in due form.

SEC. 8. Any person intending to prospect on other people's landed property shall be bound first to obtain the owner's permission.

With exception of the cases mentioned in section 7, the landowner must allow prospecting on his landed property.

SEC. 9. The prospector shall be bound to pay to the landowner, in consideration of the loss of the use of his property or any part of it, yearly in advance a sum equal to the entire damage for such loss of use, and to return the land to the landowner after the end of his prospecting, indemnifying him fully in case the property should have lost in value.

At the time of the handing over of the property or any part thereof by the landowner to the prospector, the former can demand security for eventual indemnification.

SEC. 10. The rights ceded to the landowner in sections 61 and 62, the latter shall also be allowed to exercise in respect to the prospector.

SEC. 11. In case the prospector and the landowner can not reach an agreement about the permission to prospect, the mining department shall decide on what condition prospecting shall be allowed.

Only in the cases mentioned in section 7 shall the mining department have the right to refuse the permission. As far as the decision fixes the amount of the damages, no objection can be raised. As to the cost, section 65 shall be applied.

SEC. 12. The beginning of prospecting works shall not be suspended by the institution of legal proceedings, except for the purpose of fixing the amount of the damages or the security to be given.

SEC. 13. Any uncultivated Crown land shall be open to the public free of costs for prospecting purposes, as long as the governor has not issued special regulations for certain districts about the conditions for this utilization.

SEC. 14. The prospector shall be authorized to dispose of the minerals extracted by him while prospecting, in so far as third persons shall not have acquired certain rights to the same.

The prospector shall pay a royalty, as stipulated in section 55, on all extracted minerals, the regulations of sections 51 and 52 being conformably applied.

B.—Prospecting area.

SEC. 15. The mining department shall, on application, issue licenses for prospecting purposes and charge such fees as are stipulated in section 16. Any person may apply for any number of prospecting licenses. The governor may also empower other officials to issue prospecting licenses.

SEC. 16. The prospecting licenses are made out in the name of the applicants and bear numbers of control. A prospecting license may be issued for a term of six months. The licenses can from time to time (without limitation) be renewed. A fee of 5 rupees (\$1.62) must be paid in advance for every month's prolongation of the license.

SEC. 17. A prospecting license shall give the right to prospect on all land situated within the colony, excepting the districts in which, according to section 6, prospecting has been prohibited and as regards the grounds mentioned in section 13, under the rules applying to same.

The governor may order that, in specially mentioned districts, a prospecting license shall give no right before it has been registered in a public register of prospecting licenses, kept for that purpose by the competent local authority. Before being used in another district, the entry in the register of the district in which the license was first used must be canceled.

SEC. 18. Prospecting licenses may be transferred to other persons. The rights connected with the prospecting license are transferred to the cessionnaire, in case of a transfer of a license by an authority competent to issue prospecting licenses (section 15). A fee of 5 rupees (\$1.62) must be paid for the transfer.

SEC. 19. A prospecting license gives the right, in accordance with the following rules, to peg off a prospecting area (viz, a prospecting area for precious minerals or an ordinary prospecting area), and the consequences of such pegging off an area are that, excepting any rights already existing, the prospector excludes any third person from prospecting and mining for all the minerals, indicated in section 1, in a prospecting area for precious minerals, and in an ordinary prospecting area from prospecting and mining for ordinary minerals.

SEC. 20. A prospecting area for precious minerals has horizontally a rectangular form, with sides not exceeding in length 400 by 200 meters (436 by 218 yards), and an ordinary prospecting area is also of rectangular shape, the side lines not exceeding in length 1,200 by 600 meters (1,308 by 654 yards).

SEC. 21. Areas must be pegged off in the manner following:

1. By raising a signboard, marking the central point of the claim, on which must be noted the prospector's name, the number of the prospecting license, the date of erecting the board, and a declaration whether a prospecting area for precious minerals or a prospecting area for common minerals is to be secured.

2. At both sides of the board ditches of at least 2 meters (2.18 yards) in length must be dug in a straight line, showing the direction of the long sides of the area.

SEC. 22. Within a fortnight after raising the prospecting board the corners of the prospecting area must be fixed and indicated by pegs and ditches of at least 1 meter (1.09 yards) in length, in the direction of the sides of the prospecting area. By failing to do so the area will be open again to be pegged off by anybody else (section 19). If the area indicated by the corner posts exceeds by more than 10 per cent the area allowed by section 20, the consequences will be the same.

SEC. 23. After having marked a prospecting area, notice must be given to the mining department or to the authority appointed by the governor. The notice shall contain (1) the prospector's name and his residence; (2) the number of control of the prospecting license and the period for which it has been issued; (3) the declaration whether a precious or an ordinary prospecting area has been secured; (4) the day of the erection of the prospecting board (section 21); (5) the most exact description of the position and extent of the prospecting area, the boundaries of the prospecting area and its dimensions, and the magnetical north line; and such existing objects as may help to indicate the situation shall be shown from the sketch, which shall be submitted simultaneously, in such a manner that the prospecting area itself can upon such information be found. The mining department is authorized to order that the notice shall contain still other declarations.

SEC. 24. On the receipt of every notice of this kind a certificate will be given free of cost. Every notice shall be registered in the register of prospecting areas. Anyone shall be allowed to inspect these registers.

SEC. 25. Within four weeks after raising the prospecting board, the required notice must be given.

If the prospecting area, measured in a straight line, is more than 100 kilometers (62.14 miles) distant from the office of the authority whose duty it is to register such notice, this term will be increased one day for every 15 kilometers (9.3 miles) or part of 15 kilometers.

SEC. 26. By not giving the said notice within the stated time or by not applying in time for the renewal of the prospecting license, the exclusive right of the prospector to the prospecting area shall be lost.

SEC. 27. Any prospector is entitled to peg off a new prospecting area on giving up the area secured by him. Within twenty-four hours after raising the prospecting board (section 21) on the new prospecting area, the pegs and other signs on the former prospecting area must be removed.

At the latest with the notice of the new prospecting area the abandonment of the former prospecting area must be declared; for the purpose of annulling the entry in the register of prospecting areas. The regulations of sections 23 to 26 shall apply in these cases.

SEC. 28. The prospector shall, at the request of any neighboring prospector, be obliged to show him the boundaries of his own prospecting area.

III.—THE WORKING OF MINES.

A.—The mining field.

SEC. 29. The regular extraction of minerals (section 1) or the working of a mine shall be allowed only in a mining claim.

SEC. 30. The prospector may at any time request the mining department to change his prospecting area or a part of it into a mining claim, either for precious or for ordinary minerals.

SEC. 31. The mining department shall also be entitled to make such a change against the will of the prospector:

(1) When minerals are regularly extracted on the prospecting area.

(2) When the prospecting area or a part of it has been occupied uninterruptedly, or with unimportant interruptions, for more than five years.

SEC. 32. In case of change as described in section 30, no official examination as to the presence of any one of the minerals mentioned in section 1 will take place.

SEC. 33. A mining claim shall have a rectangular form, with long sides not more than five times greater than the short sides. Vertical plains, let down through the sides of the rectangle, shall form the depth boundaries of the mining claim. Deviations from the rectangular form must be approved of by the mining authorities. The area of the claim must, in accordance with the vertical projection, be measured in hectares.

SEC. 34. Several adjoining or partly adjoining prospecting areas belonging to one prospector may be changed into one united mining area with the consent of the mining department.

SEC. 35. Such change shall be made in such a way that the entry of the prospecting area, to the extent of which such change is applied for (section 30) or ordered (section 31), will be annulled in the register of prospecting areas, and the mining claim will be registered in the mining register under a special name. The regulations of section 24 shall apply to the mining register.

SEC. 36. On application, a certificate of such change will be issued free of charge. Such a certificate gives the owner of the mining claim the right to request the official to survey his mining claim.

SEC. 37. The surveying and marking shall be done under the direction of the mining department. The fees are to be borne by the applicants.

SEC. 38. To the owners of prospecting areas or mining claims, whose rights in

connection with the situation of their areas may be opposed to those of the applicant, the mining department must give proper notice, in order that they may secure their own rights.

SEC. 39. If from the negotiations it becomes clear that a certain area belongs to the applicant, a survey will be made. A deed of survey shall be drawn up by the mining department and the contents of such a document shall be published. Any-one shall have the right to inspect such document and also the sketch of survey.

SEC. 40. Alleged claims based on opposed rights expire within six months after publication of the contents of the deed of survey, provided that no judicial steps are previously taken (to prevent such expiration).

SEC. 41. Opposed right being established by judgment of a court of law, the deed of survey must be annulled or changed according to such decision.

SEC. 42. The mining claim is transferable. The transfer must be notified to the mining department, to be registered in the register of mining areas. All documents required as proof are to be handed in with such notice. In consequence of the registration, the mining area shall be transferred to the new owner. A certificate of registration may be issued on application. Any person registered in the register of mining claims shall be responsible to the mining department for the due performance of all duties imposed by these regulations.

SEC. 43. Any alteration between neighboring mining claims, the division of one claim into several independent mining claims, and the amalgamation of several adjoining claims into one block must be approved by the mining department. Such approval can be refused only if important reasons of public interest are opposed thereto. A fee of 20 rupees (\$6.48) must be paid for the approval.

B.—The rights and duties of the mine owner.

SEC. 44. The mine owner (sections 30, 31, and 41) shall have the exclusive right to search for and to extract in a gold-mining claim all minerals mentioned in section 1 and in an ordinary mining claim all common minerals mentioned in section 1. Also to make and erect all machines, appliances, works, and other things for the purpose on and under the surface.

SEC. 45. The mine owner shall have the right to erect, build, and make and to work all the machinery and other things required for the dressing of ores and for the purpose of smelting his mining products.

SEC. 46. The mine owner shall have the right to perform subsidiary workings, as far as the land has not been taken up. A similar privilege can be granted by the mining department with respect to another prospecting area or mining claim, if such subsidiary workings are intended to drain or to air the mine or for the more advantageous exploitation of the mine; provided, however, that the carrying on of mining operations in the other claim shall not be disturbed nor endangered. Persons performing subsidiary workings have to make good in full any damage arising from the said workings.

SEC. 47. The imperial chancellor or the governor orders to what extent the mine owner is entitled to use or have the advantage of the water existing on his area, or artificially introduced to it, for the purpose of working his mine and for the necessary byworks.

SEC. 48. The owner of an ordinary mineral claim shall have the right to extract, with the common minerals, as much precious minerals as, in accordance with the decision of the mining department, it may be necessary to extract therewith. The mining department decides if the economical value of the deposit as a whole depends on the presence of precious minerals; in this case, the ordinary mining claim or a corresponding part of it must be converted into a precious mining claim by the mining department.

SEC. 49. If several mine owners should be entitled to extract precious and common minerals within the same boundaries, every party on extracting his minerals shall be entitled to extract also the minerals of the other party. Such extracted minerals, belonging to another party, must, however, on application be handed over to the other party, against restitution of the expenses of extracting and hauling.

SEC. 50. The mine owner shall have the right to demand the cession of any land necessary for his mining purposes (sections 44 to 49) in accordance with section 60 and following.

SEC. 51. The mine owner shall be bound: (1) Within a time to be fixed by the mining department to mark the boundaries of his claim in a way conspicuous to everyone, if the claim's boundary lines are not yet marked according to section 39; (2) to keep an account of the production.

The mining department shall have the right to inspect the accounts relating to the production.

SEC. 52. The mining department can impose a fine not exceeding 300 rupees (§97.20) should a mine owner not comply with the rules of section 51; or the cancellation of the mining claim can take place.

SEC. 53. The governor may order that persons appointed to keep accounts shall be sworn to perform their duty conscientiously.

SEC. 54. The miner must pay a yearly area tax: (a) For precious mineral claims, 20 rupees (§6.48) for every hectare (2.471 acres) of the first 100 hectares (247 acres); (b) for ordinary mineral claims, 1 rupee (32.4 cents) for every hectare of the first 500 hectares (1,235 acres), but not less than 20 rupees (§6.48) for every mining area.

SEC. 55. The miner has also to pay an output tax, which amounts to 1½ per cent of the value of the mining products before they are dressed. Payment must take place half-yearly.

SEC. 56. If the amount of the output tax which the mine owner has to pay exceeds that of the area tax, then the excess shall be deducted from the amount of the area tax.

SEC. 57. Any person being more than two months in arrears in payment of area or output taxes incurs a penalty of an additional tax up to one-fourth of the amount due.

SEC. 58. If the taxes and the additional penalty are not paid within a further period of four months, the mining claim may be canceled.

SEC. 59. The effect of such cancellation is that the area again becomes open to any prospector.

IV.—THE LEGAL POSITIONS AND RIGHTS BETWEEN MINERS AND LANDOWNERS.

A.—The cession of land.

SEC. 60. As far as the use of another's land is indispensable to the working of mines, including the erection of machinery or other constructions for the dressing of ores and smelting operations, and works required for water supply (sections 44 to 49), the mine owner shall have the right to demand the cession of such landed property. The cession may only be refused in cases in which the public interest requires such refusal.

The owner can not be compelled to cede against his will landed property on which dwelling houses, farm buildings, or business premises are erected, or the fenced courtyards and gardens attached to them.

SEC. 61. The miner is obliged to pay the landowner every year in advance an indemnity for the loss of use of his property, and to return the same to him when he no longer requires it. If the property by such use is reduced in value, the mine owner must pay a sum equal to the decrease in value.

SEC. 62. If it is certain that the use of the property will continue for more than three years, the owner may demand that the mine owner shall buy the land.

SEC. 63. The mining department shall, if the mine owner and the landowner can not agree about the cession of the property, decide on what conditions the owner shall be obliged to cede or the mine owner to buy the property.

* * * * *

VII.—PENALTIES.

SEC. 73. A fine up to 3,000 rupees (\$972), or imprisonment up to six months, shall be inflicted on any person: (1) Who pegs off a prospecting area without permission; (2) who takes away, destroys, or displaces a prospecting board or the boundaries of prospecting areas and mining claims; (3) who, without permission, takes away minerals from a prospecting area or mining claim with the intention of usurping them; (4) who knowingly surpasses the boundaries of his own claim; (5) who knowingly makes false declarations of the output.

TRADE OF MADAGASCAR.

I give below custom-house statistics showing the imports and exports of the port of Tamatave for the years 1901 and 1902. The imports amounted to \$3,324,142, an increase of \$62,193. The tonnage for the year 1902 reached 30,451—a decrease of some 3,000 tons. This decrease in tonnage, notwithstanding an increase in value, is explained by the fact that \$117,000 less of rice—a heavy commodity—was needed from abroad, thus showing that the country is recovering its stability and becoming more self-supporting. The only other item showing an important falling off—lime, cement, etc. (\$35,000)—is also rather a sign of progress, showing that the resources of the country are being worked, for there is no doubt that the past year has been marked by increased activity in building. Nearly all other articles show an increase, particularly cottons (\$189,000). That a young colony can in one year buy from abroad \$117,000 less of food stuffs, which it can produce, and purchase \$189,000 more of cotton goods, which it can not manufacture, seems to indicate progress on a sound basis of political economy. Liquors come next, showing a gain in the imports of \$77,640; these consist chiefly of French wines. Sawn lumber (pine) shows an increase of \$42,000. There will always be a market for this commodity, as the hard woods of the country are too costly to use for the purposes to which pine timber is applied.

To the total figures of the imports must be added \$460,884 and 5,951 tons of material entered for the account of the Government, chiefly for railway construction.

The exports for 1902 stand at \$1,059,534, against \$880,059 for 1901. Gold dust and cattle exported to South Africa make up just four-fifths of this amount, the gold dust exported last year amounting to the value of \$748,976. The only other two items worth mentioning are hides (\$100,754) and rafia fiber (\$82,502). This latter is

a falling off of \$60,000 from the previous year, owing to the population being requisitioned for railway building. The French Government now organizes the labor system for the railway and other public works, so that no interruption occurs in the rice-planting operations; but other pursuits, such as gathering rubber or vegetable fiber, have to yield precedence for the present.

The situation as a whole shows improvement over last year. The figures for six years will best illustrate the rate of progress:

Year.	Imports.	Exports.
1897	\$2,103,523	\$184,184
1898	2,444,927	147,572
1899	2,044,540	460,752
1900	2,367,150	954,040
1901	3,261,940	980,059
1902	3,785,026	1,059,534

Exports from Tamatave, Madagascar, for the year 1902.

Article.	Value.	Increase over 1901.	Decrease from 1901.
Animals, live (oxen).....	\$53,440	\$24,817	.....
Animal produce (hides).....	100,754	37,601	.....
Cloth, native.....	841	824	.....
Colonial produce.....	26,160	10,108	.....
Divers waste products.....	9	.....	\$88
Farinaceous food (rice, etc.).....	130	113	.....
Fish, dried and smoked.....	.....	.....	103
Fruits and seeds.....	64	.....	6
Gold dust.....	748,974	159,715	.....
Hard wood (samples).....	165	11	.....
Marble and stone (samples).....	193	193	.....
Metal, articles of.....	530	348	.....
Oils, essential (native).....	37,940	7,815	.....
Straw work (articles).....	.....	.....	876
Unclassified articles.....	962	851	.....
Vegetable fiber (rafia, etc.).....	82,502	.....	60,156
Woodwork.....	15	15	.....
Wood, rose, ebony, etc.....	6,846	.....	1,617
Total.....	1,059,534	242,411	62,936

Imports into Tamatave, Madagascar, for the year 1902.

Article.	Value.	Increase over 1901.	Decrease from 1901.
Animals, live.....	\$15,741	\$12,163	.....
Animal products (horns, etc.)	67,873	.....	\$10,149
Arms, ammunition, etc.....	18,573	.....	2,852
Chemical products.....	18,134	2,934	.....
Colonial produce.....	121,104	13,477	.....
Cloth (bleached cotton, etc.).....	1,061,425	189,017	.....
Divers waste products.....	25,003	1,673	.....
Drinks (wines, alcohols, etc.).....	425,112	77,640	.....
Dyes, prepared.....	81	.....	212
Dyestuffs.....	114	1	.....

Imports into Tamatave, Madagascar, for the year 1902—Continued.

Article.	Value.	Increase over 1901.	Decrease from 1901.
Farinaceous food (rice).....	\$304,501		\$117,005
Fish (cod, etc.).....	20,639	\$3,038	
Fruits and seeds.....	4,191		1,122
Furniture.....	30,519		3,555
Glass and crystal ware.....	17,262	1,210	
Hides, etc.....	65	7	
Leather and peltry.....	50,650	18,981	
Lime, cement, etc.....	129,263		35,308
Lumber, sawn.....	85,452	42,367	
Metals (corrugated iron, etc.).....	93,608		5,291
Musical instruments.....	13,011	3,126	
Oils (olive, etc.).....	45,789	16,150	
Paints.....	16,812		993
Patent medicine.....	269	160	
Paper and accessories.....	44,974		5,481
Pottery.....	13,333	2,345	
Rope, cords, and thread.....	24,546	14,285	
Unclassified articles.....	197,224	28,975	
Various compositions.....	64,426		9,869
Vegetable fiber.....	2,478	1,406	
Wicker and basket work.....	14,881		5,462
Worked metals.....	364,756		78,578
Woodwork.....	32,333	9,444	
Total.....	3,324,142	436,054	275,877

WILLIAM H. HUNT,

TAMATAVE, *February 7, 1903.**Consul.*

CONSUMPTION TAX IN MADAGASCAR.

Consul W. H. Hunt writes from Tamatave, March 4, 1903:

Referring to the report from this consulate dated April 3, 1900,* concerning the consumption tax levied on goods entering Madagascar over and above the usual customs duties, I now transmit translation of an amended tariff recently published here. The tendency of this tariff is to further augment the taxes on articles of daily consumption already very expensive. Textile fabrics of all kinds and alcohols are particularly affected, and salted meats—a staple article of food with the Creole population—are now taxed. Petroleum oil, the principal import from the United States, undergoes no change. No other articles call for any particular mention.

On the other hand, in view of the continued decrease of exports of native produce from Madagascar, the Government has adopted an economic policy and this week abolished the export duties on all native produce except live cattle.

* See ADVANCE SHEETS No. 745 (June 2, 1900).

Consumption tax, expressed in United States currency, levied on merchandise entered in Madagascar and dependencies, dated January 11, 1903.

Article.	Unit.	Duty.
Alcohols (rum, brandies, absinth, and other alcoholic liquors of any kind, including alcoholized wines and wine made from dried raisins).....	Gallon	\$2.19
Beer:		
In barrels.....	100 gallons.....	3.65
In bottles.....	Bottle.....	.02
Cider and perry.....	.....do.....	.02
Champagne and other sparkling wines.....	.....do.....	.10
	Half bottle.....	.05
Fish (dried, smoked, salted, and tinned).....	100 pounds.....	.43
Gunpowder and fireworks.....	Pound.....	.09
Liqueurs:		
In barrels.....	Gallon	4.38
In bottles.....	Bottle.....	.20
Matches.....	Pound net.....	.26
Oils:		
Olive.....	10 pounds.....	.14
Vegetable.....	.....do.....	.09
Opium.....	Pound.....	1.39
Playing cards.....	Package.....	.06
Petroleum and other mineral oils for lighting.....	10 pounds net....	.09
Salt, sea salt, rock salt.....	100 pounds.....	.43
Salt meat.....	.....do.....	.43
Sugar, refined.....	.....do.....	.43
Textile fabrics of all kinds.....	Ad valorem.....	8 p. c.
Vegetables, preserved or canned.....	10 pounds.....	.09
Wine, ordinary table:		
Of 14° and under—		
In barrels.....	100 gallons.....	3.95
In bottles.....	Bottle.....	.01
Above 14°, and sweet wines—		
In barrels.....	100 gallons.....	10.95
In bottles.....	Bottle.....	.03

TRADE IN NORFOLK ISLAND.

CABLE.

The most important item in the year's record is the completion of the British Pacific cable and the establishment on Norfolk Island of one of its repeating stations. The first portion of the cable—connecting Australia, New Zealand, and Fiji with Norfolk Island—was completed last April; the last portion—that between Vancouver, Fanning Island, and Fiji—was finished in November last, and through business was commenced on the 8th of last December and is now in full operation. The cable buildings and operating house are situated at Anson's Bay, on the northwest side of the island, about 7 miles from Kingston. A signal station to report passing vessels is also in operation.

WHALING.

The whaling industry was very successful in the past season and closed with a catch of 18 whales, which, although in point of numbers not as good as in the previous season, was better in that the whales were larger. Six boats were engaged in the industry, and the catch will amount to about 70 tons of oil, which has been sold at \$68 per ton free on board, buyers finding casks. This will give the men employed a very fair dividend indeed.

AGRICULTURE.

Agricultural conditions have not progressed during the past year, as the majority of the islanders were employed in the construction of the cable buildings. Potatoes and onions were, however, cultivated to a small extent, and about 60 tons—nearly the whole of the crop—were exported to Nouméa, yielding satisfactory returns. The coffee crop, a fair yield, will amount to 10 or 12 tons.

STATISTICS.

Imports and exports.

Country.	Value.	
Imports from—		
New South Wales.....	£11,804	\$57,367
New Zealand.....	794	3,859
South Sea Islands.....	88	428
Total.....	12,686	61,654
Exports to—		
New South Wales.....	1,426	6,930
New Caledonia.....	434	2,109
New Zealand.....	56	272
Total.....	1,916	9,311

Population, December 31, 1902.

In—	Males.	Females.	Total.
Norfolk community.....	360	360	720
Melanesian Mission.....	192	59	251
Total.....	552	419	971

ISAAC ROBINSON,
Consular Agent.

NORFOLK ISLAND, *February 12, 1903.*

TRADE OF CARTAGENA, COLOMBIA.

Consul J. C. Ingersoll, of Cartagena, under date of March 20, 1903, transmits the following statistics relating to the trade of the port in 1902:

The value (in United States gold) of imports by countries of origin was:

Country.	Value.	Country.	Value.
United States.....	\$635,180.75	West Indies.....	\$34,485.00
Great Britain.....	448,821.44	Belgium	11,542.40
Germany.....	293,127.76	Other countries.....	4,137.00
France.....	123,836.59	Total.....	1,601,159.28
Spain	39,507.60		
Italy	10,520.74		

The total trade of 1902, compared with the figures for 1901, was:

Description.	1902.		1901.	
	Packages.	Met. tons.	Packages.	Met. tons.
Imports.....	213,384	16,144.3	177,642	14,905.3
Exports.....	133,327	13,330.4	133,827	8,855

The increase of imports for 1902 was thus 1,239 metric tons. In the export trade for 1902 an increase of 4,475.4 metric tons is shown.

The chief articles of export for 1902, compared with 1901, were:

Article.	1902.	1901.	Increase.	Decrease.
Coffee bags.....metric tons...	208.5	170	38.5	
Hides	354.1	333	21.1	
Tobacco.....do.....	1,315.6	1,610		294.4
Rubber.....do.....	75.3	62.2	13.1	
Ivory nuts.....do.....	1,326.6	1,184.2	142.4	
Cacao	61	67		6
Cattle.....number.....	7,071	8,113		1,042
Divi-divi.....metric tons.....	157.3	1,213.9		1,056.6
Cotton seed.....do.....	243.9	57.9	186	

The export of coal was 3,796.8 metric tons in 1902 and 224.6 metric tons in 1901.

COLOMBIAN IMPORT DUTIES.

By a decree which took effect March 1, the duties on foreign goods coming into the country have been materially increased. The Colombian tariff classifies all articles imported into sixteen classes. The recent decree provides that articles mentioned in the various classes of the tariff,* that are not exempt of payment of duties, will pay, per kilogram (2.2 pounds):

Articles of—	Duty.	
	<i>Pesos.*</i>	
First class.....	0.20	\$0.072
Second class.....	.45	.162
Third class.....	1.25	.451
Fourth class.....	2.25	.812
Fifth class.....	4.50	1.624
Sixth class.....	9.00	3.25
Seventh class.....	13.50	4.87
Eighth class.....	18.00	6.50
Ninth class.....	22.50	8.12
Tenth class.....	27.00	9.75
Eleventh class.....	31.50	11.37
Twelfth class.....	36.00	13.00
Thirteenth class.....	40.50	14.62
Fourteenth class.....	56.25	20.31
Fifteenth class.....	67.50	24.37
Sixteenth class.....	112.50	40.61

* The Colombian peso on January 1, 1903, was valued by the United States Mint at 36.1 cents.

Other provisions of the decree are:

The sixteenth class comprises merchandise enumerated in article 2 of the law of 1896 and the extract of cognac, essence, and spirits for the fabrication of liquors.

Tobacco made into cigars and cigarettes will be in class 15; tobacco cut or in other form, in class 10; cigarette paper and wrappers therefor, in class 8; liquors, absinth, alcohol (absolute, pure, disinfected, etc.), bitters, brandy, champagne, cognac, creams, curaçoa, chartreuse and others, pousse cafés, gin, kirsch, rum, whisky, and the like, in class 14.

In the custom-houses of the Republic, in which import duties are collected in silver money 0.835 fine, only double of what was paid before the issue of this decree will be collected and in the same proportions.

By decree of February 14, 1903, foreign salt is taxed 50 pesos (\$18.05) per each 12.5 kilograms (27.5 pounds).

By a decree of February 9 (still in force), the following articles of food are temporarily exempted from duty: Sweet potatoes, potatoes, onions, garlic, rice, corn, chick-pease, lentils, beans, sugar, flour,

* See Special Consular Reports, Tariffs of Foreign Countries, Part II.

lard, butter, and all kinds of vegetables and grains, if these articles are introduced in their natural state and without preparation of any kind.

GEORGE W. COLVIG,
Consul.

BARRANQUILLA, March 12, 1903.

Under date of March 26, 1903, Consul Oscar Malmros, of Colon, sends statement of the import duties to be levied at that port after April 5, 1903, with the progressive reductions, as follows:

IMPORT TAX ON GOODS PAYING AD VALOREM DUTIES.

The original import duty is 10 per cent ad valorem. This is the duty to which the present tax of 30 per cent ad valorem is to be reduced. The method is: 10 per cent raised to 30 per cent is equal to a difference of 20 per cent; less 10 per cent per month of said increase equals 2 per cent a month on the amount of 30 per cent, which at the end of ten months will leave the original 10 per cent ad valorem duty.

Example.

	Per cent.
Duty to April 5, 1903.....ad valorem...	30
From April 5 to May 5.....do.....	28
From May 5 to June 5.....do.....	26
From June 5 to July 5.....do.....	24
From July 5 to August 5.....do.....	22
From August 5 to September 5.....do.....	20
From September 5 to October 5.....do.....	18
From October 5 to November 5.....do.....	16
From November 5 to December 5, 1903.....do.....	14
From December 5, 1903, to January 5, 1904.....do.....	12
From January 5, 1904.....do.....	*10

IMPORT TAX ON GOODS NOT PAYING AD VALOREM DUTIES.

The original import duty on distilled liquors up to 21 per cent Cartier, except alcohol and rum (cognac, whisky, anisado, refinado, rosoli, naranjito, seco, etc.), is 60 cents (21.6 cents gold) per liter (1.05 quarts). This is the duty to which the present tax of 2 pesos (72.2 cents gold) is to be reduced. The method is: 60 cents (21.6 cents gold) per liter (1.05 quarts) increased to 2 pesos (72.2 cents gold) is equal to 1.40 pesos (50.5 cents gold) increase; less 10 per cent per month of said increase, or 14 cents (5.05 cents gold), at the end of ten months will leave the original 60 cents (21.6 cents gold) duty per liter (1.05 quarts).

* The original duty.

Example.

Period.	Duty.	
	Pesos.	Cents.
Duty to April 5, 1903.....per liter *...	2.00	72.2
From April 5 to May 5.....do.....	1.86	67.1
From May 5 to June 5.....do.....	1.72	62.09
From June 5 to July 5.....do.....	1.58	57.03
From July 5 to August 5.....do.....	1.44	50.9
From August 5 to September 5.....do.....	1.30	46.9
From September 5 to October 5.....do.....	1.16	41.8
From October 5 to November 5.....do.....	1.02	36.8
From November 5 to December 5, 1903.....do.....	.88	31.7
From December 5, 1903, to January 5, 1904.....do.....	.74	26.7
From January 5, 1904.....do.....	†.60	21.6

* 1 liter=1.05 quarts.

† The original duty.

The original import duty on sirups is 2 cents (0.7 cent gold) per kilogram (2.2 pounds, or 1.05 quarts); this is the duty to which the present tax of 30 cents (10.8 cents gold) per kilogram is to be reduced, as follows: 2 cents (0.7 cent gold) per kilogram increased to 30 cents (10.8 cents gold) is equal to 28 cents (10.1 cents gold) increase; less 10 per cent per month, or 2 cents (0.7 cent gold) a month, will leave the original 2 cents (0.7 cent gold) duty per kilogram.

The original import duty on liquors of more than 21 per cent Cartier, 1.20 pesos (43.3 cents gold) per liter (1.05 quarts), is the duty to which the present tax of 4 pesos (\$1.44 gold) is to be reduced, as follows: 1.20 pesos (43.3 cents gold) per liter (1.05 quarts) increased to 4 pesos (\$1.44 gold) is equal to 2.80 pesos (\$1.01 gold) increase; less 10 per cent per month of said increase, or 28 cents (10.1 cents gold) a month, at the end of ten months will leave the original duty of 1.20 pesos (43.3 cents gold) per liter. Common rum and alcohol will continue to pay the former duty.

The original import duty on champagne and other sparkling drinks is 10 cents (3.6 cents gold) per kilogram (1.05 quarts); this is the duty to which the present duty of 1 peso (36.1 cents gold) per kilogram is to be reduced by the following method: 10 cents (3.6 cents gold) per kilogram increased to 1 peso (36.1 cents gold) is equal to 90 cents (32.4 cents gold) increase; less 10 per cent per month, or 9 cents (3.2 cents gold) a month, at the end of ten months will leave the original 10 cents (3.6 cents gold) duty per kilogram.

The original import duty on red wine is 2 cents (0.7 cent gold) per kilogram (1.05 quarts); this is the duty to which the present tax of 10 cents (3.6 cents gold) per kilogram is to be reduced, as below: 2 cents (0.7 cent gold) per kilogram increased to 10 cents (3.6 cents gold) per kilogram is equal to 8 cents (2.8 cents gold) increase;

less 10 per cent per month at the end of ten months will leave the original 2 cents (0.7 cent) duty per kilogram.

The original import duty on gaseous waters, soda waters, lemonades, etc., is 1 cent (0.36 cent gold) per kilogram (1.05 quarts); this is the duty to which the present tax of 10 cents (3.6 cents gold) per kilogram is to be reduced, as follows: 1 cent (0.36 cent gold) per kilogram increased to 10 cents (3.6 cents gold) per kilogram is equal to 9 cents (3.2 cents gold) increase; less 10 per cent per month at the end of ten months will leave the original 1 cent (0.36 cent gold) duty per kilogram.

The original import duty on beer, white and black, is 2 cents (0.7 cent gold); this is the duty to which the present tax of 20 cents (7.2 cents gold) per kilogram (1.05 quarts) is to be reduced at the rate of 10 per cent per month.

The original import duty on wines (Malaga, Jerez, Oporto, etc.) is 10 cents (3.6 cents gold) per kilogram (1.05 quarts); this is the duty to which the present tax of 20 cents (7.2 cents gold) per kilogram is to be reduced, as below: 10 cents (3.6 cents gold) increased to 20 cents (7.2 cents gold) per kilogram is equal to 10 cents (3.6 cents) increase; less 10 per cent per month, or 1 cent (0.36 cent gold) per kilogram, at the end of ten months will leave the original duty of 10 cents (3.6 cents gold) per kilogram.

The original import duty on bitters and aperitives of any name or quality is 10 cents (3.6 cents gold) per kilogram; this is the duty to which the present tax of 30 cents (10.8 cents gold) per kilogram is to be reduced, according to the following method: 10 cents (3.6 cents gold) per kilogram increased to 30 cents (10.8 cents gold) is equal to 20 cents (7.2 cents gold) increase; less 10 per cent per month, or 2 cents (1.08 cents gold) a month, at the end of ten months will leave the original 10 cents (3.6 cents gold) duty per kilogram.

The duty on white wine, not having been increased, will remain at 10 cents (3.6 cents gold) per kilogram.

TRADE-MARKS IN CHILE.

The secretary of legation at Santiago, Mr. Hutchinson, reports a valuable decision of the Supreme Court of Chile in relation to the falsification of trade-marks. Although several laws, he notes, have been passed by Congress on the subject, the last being in 1898, those dealing in genuine imported articles have been obliged to suffer from the fact that imitations made in the country were on the market under false labels. By the action of the Apollinaris Company, which has spent some \$20,000 in gaining this important decision, other

merchants have a precedent in law which will make it easy for them to suppress falsifications of trade-marks, etc. The decision provides:

1. That the name of a person or of a vineyard, factory, industry, real estate, etc., belongs exclusively to the person who bears it or bestows it upon objects in his possession, by direct emanation from the right of property and other individual rights guaranteed by the constitution of the State and not through special concession of secondary laws which regulate the exercise of these rights.

2. That the law of November 12, 1874, which created a public register for the inscription of trade-marks, regulating the use of marks of this nature, has specially recognized in article 4 the principle laid down in the foregoing paragraph, by indicating that the name of a farm, mill, foundry, or factory shall be for the exclusive use of the proprietor of the farm, foundry, or factory.

3. That the said article does not require, according to this, that the exclusive right to the name shall be acquired solely by its inscription in the respective register, which inscription is necessary only, according to article 5 of the same law, in order to have the monopoly—or, in other words, exclusive right—for the use of marks which have symbols or emblems or figures or other characteristic signs, and which in their entirety form a special mark with or without the name of the producer or vender.

4. That simple logic shows that the name of a person or of a well-individualized industrial establishment can not be legitimately used by other parties for the purpose of speculating with the same to the prejudice or discredit of its true owners, whether the latter have or have not taken the precaution to inscribe such names which always form an integral part of their patrimony.

NITRATE PRODUCTION IN CHILE.

The annual report of the Nitrate Association contains statistics that are of general interest, as practically all of the world's supply of nitrate comes from Chile.

The production in 1902 amounted to 2,982,967,900 pounds, or 146,131,900 pounds more than in 1901. The exportation amounted to 3,008,944,000 pounds, as compared with 2,738,522,800 pounds in the previous year. The deliveries for consumption showed a considerable decrease in the period of greatest demand—January to May—as compared with the corresponding period in 1901. The total deliveries in 1902 amounted to 2,840,084,000 pounds, or 293,703,200 pounds less than in 1901. The decrease to Europe and other countries was 333,999,800 pounds; to the United States there was a gain of 40,200,000 pounds.

The total deliveries in each year of the quinquennial 1898–1902 were:

	Pounds.
1898.....	2, 768, 322, 200
1899.....	3, 071, 276, 900
1900.....	3, 044, 304, 000
1901.....	3, 133, 787, 200
1902.....	2, 840, 084, 000

The visible supplies on December 31, 1902, were as under:

	Pounds.
On shore.....	576, 607, 400
Afloat.....	1, 071, 617, 000
Supplies for foreign markets.....	1, 648, 224, 400
Stocks on the coast.....	548, 400, 000
Total.....	2, 196, 624, 400

The smallest number of works in operation in the four years was 44 in February, 1899, and the largest was 78 in December, 1902. The total of the quotas already assigned amounts to 4,041,500,000 pounds, and it will soon be necessary to take into consideration the quotas for several new works now in course of erection.

R. E. MANSFIELD,

VALPARAISO, February 20, 1903.

Consul.

ARGENTINE TRADE IN 1902.

Minister W. P. Lord, of Buenos Ayres, under date of February 5, 1903, transmits some figures* compiled by the legation relative to the foreign commerce of the Argentine Republic during the calendar year 1902, as compared with 1901:

Description.	1901.		1902.	
	Imports.	Exports.	Imports.	Exports.
Dutiable.....	\$91,918,445	\$71,770,447	\$81,617,059	\$77,431,531
Free.....	18,052,712	90,075,590	17,815,823	95,773,161
Total.....	109,971,157	161,846,037	99,432,882	173,204,692

According to the above figures, the decrease of imports for the year 1902 amounts to \$10,538,275 and the increase of exports to \$11,358,655, or a net increase in the foreign trade of this Republic of \$820,380 during the year 1902. The following table shows the countries which participated in the imports of Argentina during the two years under comparison:

Country.	1901.	1902.	Increase.	Decrease.
Germany.....	\$16,139,190	\$12,766,250		\$3,372,940
Belgium.....	8,384,554	5,292,285		3,092,269
Brazil.....	4,232,535	4,423,217	\$190,682	
Spain.....	3,775,597	3,056,060		719,537
United States.....	14,989,962	12,837,881		2,152,081
France.....	9,610,957	8,919,564		691,393
Italy.....	14,220,339	11,835,728		2,384,611
Paraguay.....	1,705,776	1,418,077		287,699
United Kingdom.....	35,184,679	35,700,619	515,941	
Other countries.....	1,727,567	3,183,200	1,356,633	
Total.....	109,971,157	99,432,882		10,538,275

* The values were given in Argentine gold and changed in the Bureau of Foreign Commerce; \$1 Argentine=96½ cents in United States gold.

The classes of imports for the two years under comparison were:

Description.	1901.	1902.
Live animals.....	\$195,555	\$447,379
Food stuffs:		
Animal.....	1,510,985	1,454,888
Vegetable.....	9,060,094	8,799,206
Tobacco.....	2,930,982	3,116,609
Beverages:		
Wines.....	5,283,016	3,934,150
Spirits and liquors.....	1,216,382	1,183,897
Other beverages.....	343,006	270,077
Textiles:		
Silk.....	1,671,935	1,393,626
Woolen.....	5,964,485	4,745,123
Cotton.....	16,332,241	15,686,733
Other.....	7,825,974	6,877,710
Oils.....	4,346,030	3,843,400
Chemicals and drugs.....	3,970,884	3,568,377
Dyes and colors.....	813,498	675,433
Lumber.....	5,592,360	5,149,587
Manufactured wood.....	1,548,232	1,167,202
Paper.....	2,936,812	2,467,523
Leather.....	1,101,843	968,968
Iron, raw.....	11,385,091	9,128,064
Iron and steel machinery and tools.....	9,578,996	8,160,955
Other metals:		
Raw.....	1,262,840	1,245,264
Manufactured.....	1,975,558	1,392,951
Ceramic products:		
Raw.....	8,106,624	9,149,805
Manufactured.....	1,693,078	1,377,085
Miscellaneous.....	3,324,766	2,968,868
Total.....	109,971,157	99,432,882

The following table shows the countries participating in the exports of the Republic during the years 1901 and 1902:

Exported to—	1901.	1902.	Increase.	Decrease.
Africa.....	\$2,790,065	\$7,995,398	\$5,205,333	
Germany.....	20,728,086	22,136,985	1,408,899	
Belgium.....	12,986,710	13,278,611	291,901	
Bolivia.....	522,112	579,355	57,243	
Brazil.....	9,362,901	8,075,836		\$1,287,065
Cuba.....	353,367	454,506	101,139	
Chile.....	548,287	660,169	111,882	
Spain.....	2,057,103	1,954,538		102,565
United States.....	8,971,088	9,686,261	715,173	
France.....	27,624,822	28,551,896	927,074	
Italy.....	4,167,787	4,068,205		99,582
Netherlands.....	1,692,543	2,735,088	1,042,545	
Paraguay.....	208,491	204,785		3,706
United Kingdom.....	28,873,532	33,856,124	4,982,592	
Uruguay.....	3,580,790	3,545,056		35,734
Other countries.....	8,603,856	9,839,791	1,235,935	
To orders.....	28,764,508	25,582,087		3,182,421
Total.....	161,846,037	173,204,692	11,358,655	

The classes of exports for the two years were:

Description.	1901.	1902.
Live stock	\$2,976,789	\$5,421,077
Wool, hides, etc.....	78,920,070	86,021,864
Manufactures from animal products.....	4,973,828	8,719,977
Animal refuse.....	603,100	717,351
Cereals.....	60,895,359	58,979,282
Manufactures of cereals.....	6,469,467	4,809,448
Vegetable refuse.....	1,721,919	1,986,605
Wood and products of.....	2,722,744	3,521,486
Minerals.....	394,145	315,561
Hunting products.....	907,236	693,293
Miscellaneous.....	1,257,880	2,008,737
Total.....	161,846,037	173,204,692

The following is a list of the principal products exported from the Republic during the year 1902, and the principal countries to which they were exported:

Article.	Germany.	Belgium.	United States.	United Kingdom.	France.	Italy.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Wheat.....	18,253	80,346	966	70,427	6,103	15,464
Corn.....	120,377	108,029		296,143	51,973	24,307
Frozen meat.....				124,773		
Goat and kid skins.....		18.5	623.4	.5	646.9	1.6
Sheepskins.....	2,299	1,003	20	3,962	23,829	2,693
Salted hides.....	327,015	5,949	52,001	2,950	3,127	186
Wool.....	49,750	22,342	12,420	11,216	86,007	1,905
Quebracho wood.....	21,636	8,466	3,264	1,135	1,136	6,017
Quebracho extract.....	2,347	115	3,735	1,175	12	922
Tallow.....	1,828	1,285	254	26,140	3,709	6,024
Bones.....	3,388	1,474	14,009	3,394	956	1,426
Linseed.....	42,770	32,997	14,113	63,888	26,556	2,481
Otter skins.....	522	3	274.4	52.3	.2	1.2

The outlook for the present year, Mr. Lord adds, is hopeful and indicates greater activity in business circles.

TRACTION RAILROAD IN HONDURAS.

The Honduras National Congress has recently granted a concession to a resident of the city of Tegucigalpa to construct an automobile line or a traction road for the conveyance of passengers and freight over the new wagon road between Tegucigalpa and the Bay of Fonseca. The line will be about 80 miles in length and is designed, primarily, to connect the capital with the important port of Amapala, on the Pacific.

The enterprise may interest our manufacturers of traction supplies and electrical machinery, as well as our electrical and mechanical engineers. Mr. Daniel Fortin, the concessionary, informs me that he will purchase all his supplies from the United States and will soon visit our country to conclude contracts. The concession carries with it a monopoly of common carriage by means of electricity over the south coast road now in process of construction. The terms of the charter, briefly, are the following:

The right is granted to establish and operate a service of automobiles or traction machines over the road between Tegucigalpa and San Lorenzo (Bay of Fonseca); to import, free of duties, the necessary material; to employ foreign laborers (except Chinese), who shall be exempt for five years from military service or municipal obligations.

The grantee shall open his line to public service within one year after the completion of the wagon road. Transportation rates shall not, without Government consent, exceed 7 centavos (about 2.8 cents) per kilometer (0.62137 mile) for passengers nor 1.5 centavos (0.6 cent) per quintal (220.4 pounds) per kilometer for freight. Each passenger may carry free 22 kilograms (about 50 pounds) of baggage.

Persons shipping products of the Republic for exportation shall obtain a 25 per cent rebate. The enterprise shall maintain a regular service, except when interrupted by reason of the act of God or fortuitous circumstances; failing which, it shall be subject to a penalty of from 100 to 300 pesos (\$40 to \$120), according to the gravity of the occasion.

This concession shall remain in force during twelve years; but the Government reserves the right to conclude it after six years, if it desires to operate the road, by paying the cost of the entire enterprise.

ALFRED K. MOE,
Consul.

TEGUCIGALPA, *March 7, 1903.*

TRADE NOTES FROM COSTA RICA.

The chief exports of Costa Rica last year were:

Article.	Value.	Article.	Value.
	<i>U. S. gold.</i>		<i>U. S. gold.</i>
Coffee.....	\$3,179,818.47	Gold dust.....	\$5,992.00
Bananas.....	1,833,344.55	Coined gold and silver.....	3,911.00
Cedar.....	117,007.80	Live stock.....	4,340.80
Mahogany, rose, and dye woods.....	53,189.62	Miscellaneous.....	43,312.06
Hides and skins.....	106,464.20	Parcels post.....	20,565.30
Rubber.....	60,286.20	Baggage.....	492.44
Cacao.....	24,051.20	Returned goods.....	24,428.32
Bullion:		Total.....	5,614,426.51
Gold.....	127,503.98		
Gold and silver.....	9,718.57		

Compared with 1901, the total exportation shows an increase of a few thousand dollars. Coffee has a gain of over \$350,000; bananas, \$300,000; and cacao, \$15,000. Mahogany and other woods show a

decrease of \$75,000, and rubber a decrease of \$16,000. If the item of gold and silver coin is left out of the exports for the two years, the shipments of 1902 exceed those of 1901 by about \$600,000. On the same basis of comparison, excluding the coined money from both imports and exports, the exports of 1901 exceeded the imports by over \$900,000, while those of 1902 exceeded the imports by about \$1,400,000.

Of exports there go to the United States less than 20 per cent of the coffee, all the bananas, more than three-fourths of the hides, more than two-thirds of the rubber, and all the bullion.

The banana industry shows a marked increase, the shipments being the largest in the history of the industry in Costa Rica.

The coffee was distributed as follows:

	Per cent.
To England.....	75
To the United States.....	15
To other countries.....	10

JOHN C. CALDWELL,

SAN JOSÉ, *March 16, 1903.*

Consul.

CONCESSION FOR QUARRYING LITHOGRAPHIC STONE IN MEXICO.

A concession has been granted by the Mexican Government to Messrs. H. H. Moran and J. Emilio Meyer for the quarrying and preparation of lithographic stone. The following is an abstract:

The concessionnaires are to work a quarry of lithographic stone, on land belonging to the Government, leasing the land or acquiring it by purchase. Six months after the date of concession, the company shall submit plans of the buildings, machinery, and materials, as well as plans of the territory to be worked. Construction is to commence within one year and to be completed within three years. The Government will appoint an inspector and the company must pay into the treasury \$3,000 yearly, for salary and inspection expenses, payments to cease when workshops and machinery shall have been erected. The sum of \$100,000 is to be invested in the enterprise. The company is to import apparatus, materials, tools, etc., free of duty. The plant is to be open to the scholars of the national schools, and the company shall give the students such information as may enable them to pursue their studies intelligently. The capital, buildings, and other property of the company are to be exempt from federal taxation, except the stamp tax. The company is to be Mexican and subject to the jurisdiction of Mexico.

WM. W. CANADA,

VERACRUZ, *March 17, 1903.*

Consul.

EUROPEAN TRADE TERMS WITH CUBA.

The following trade information has been transmitted to the Department by the legation in Cuba:

Spain controls the Cuban shoe market. The Spanish manufacturers' terms are cash on shipment. Commission merchants, by whom most of this trade is handled, allow six months, interest at 6 per cent per annum, and charge Cuban merchants 2 per cent commission. English chemists usually sell for cash, but sometimes allow three or four months; discount, 1 to 2 per cent for cash. Continental firms give six to eight months' time. England and Germany sell cotton goods on four months' time; interest, 5 per cent; cash discount, 1 per cent. Spanish houses sell on four months' time, with a discount of 4 to 8 per cent. Cutlery is handled almost exclusively through English commission men on six months' time; one-half of 1 per cent per month is allowed for anticipation. Other European terms are the same. England and Germany sell electrical goods on nine months' time, without interest; after nine months interest is charged at 6 per cent. Fancy goods and notions are usually handled by commission men, who quote terms of six months with interest at 6 per cent per annum. Some French manufacturers allow four months without interest. The furniture trade is largely in the hands of the United States; Austria sells a small amount on six months, with interest at 6 per cent. For gloves, European terms range from three to six months; discount, 6 per cent for cash; commission men charge 5 per cent commission. Hardware and tools—hand and machine—are handled by commission men; terms, six months without interest, one-half of 1 per cent per month discount being allowed.

German and Spanish manufacturers sell hosiery for cash. German commission men sell on three or four months, allowing cash discount of 4 per cent. Spanish commission men sell on four months, charging interest of 6 per cent. England, Belgium, and Germany give six months on iron and steel (pipes and structural), allowing 6 per cent for cash. Paper is sold by some European manufacturers on three months' acceptance. Commission men allow three to six months, with interest at 6 per cent. Pottery is handled by commission men on terms of seven months, discount of one-half of 1 per cent per month for anticipation. On silver and silver-plated ware, Germany, France, and England quote six to twelve months, without interest, interest after maturity, 6 per cent per annum. For sugar machinery, the terms are one-third with order, one-third on delivery, balance in one month. Woolen goods, three months; prices net; interest is charged at 6 per cent from date of invoice.

AMERICAN INVESTMENTS IN CANADA.

Never in the history of Canada has the industrial outlook been so bright as it is to-day. The present year promises to be made memorable by the establishment of new and immense enterprises and the extension of many existing ones. Greatly increased transportation facilities are contemplated; the Grand Trunk Pacific and the Canadian Northern—of which McKenzie & Mann are builders—will stretch from the Atlantic to the Pacific, both lines running far north of the present Canadian Pacific line.

The Canadian Pacific Railroad has long had a line of steamships between Vancouver, Japan, and China. It will now add a line of ships between Quebec and London, Liverpool, and Glasgow. The other two transcontinental lines, as soon as completed, will also have connecting steamship lines from St. John, New Brunswick, to English ports. A new railroad from Port Simpson, on the Pacific coast, to Dawson City is contemplated.

Most of the new enterprises are aided by American capital. In a report made some months since,* I noted American investments in Canadian enterprises. Within the past four months, the following additional investments have been made by Americans:

Five thousand shares of the Royal Bank of Canada, located in Montreal, have been purchased at \$250 per share by the following syndicate of capitalists: Marshall Field, of Chicago; John J. Mitchell, president of the Illinois Trust Company, of Chicago; Norman B. Ream, capitalist, of Chicago, director of Chicago and Alton Railroad, the Erie Railroad, etc.; J. Ogden Armour and P. A. Valentine, of the firm of Armour & Co., Chicago; John B. Dennis and E. L. Marston, members of the banking firm of Blair & Co., New York; Geo. F. Baker, president of the First National Bank, New York; James A. and C. Ledyard Blair, of Blair & Co., and their friends. The adhesion of such a powerful group of American capitalists makes the Royal Bank one of the greatest financial institutions in Canada.

United States and Canadian capitalists have secured control of the timber limits of Newfoundland. Organization is completed by the Newfoundland Lumber Company, composed principally of New York and Boston lumber operators, and capitalized at \$1,000,000. The company has purchased a vast tract of the richest timber land in the colony. The properties secured include the Highland Lumber Company and the Parrsboro Lumber Company, comprising

*ADVANCE SHEETS No. 1502 (November 22, 1902).

350,000 acres, 60 per cent of which is pine, very large and sound, and comparing favorably with the Ottawa pine. The lands are well watered, and the company expects to ship from Exploit Bay next spring 10,000,000 feet of pine to Great Britain, where this wood is steadily growing in favor. The company is now erecting a large sawmill at Norris Arm, on the line of the Newfoundland Railway, which will largely increase the cut, and it will establish a colony of workmen there. The company also intends to erect large pulp mills, there being a plentiful supply of spruce and adequate water power on the property.

Another organization of New York capitalists will take over properties aggregating 4,000 square miles in the interior of Newfoundland. This transaction is one of the largest in the history of lumbering in the colony, and practically all the explored timber holdings are now in the hands of American capitalists. The same gentlemen own enormous tracts in Nova Scotia, under the name of the United Lumber Company. The latter concern is just starting to erect a large pulp mill on the Clyde River, Nova Scotia, where it has 3,000 horsepower. Mr. Henry Patton, one of the Adirondack operators, is largely interested in the Newfoundland enterprises.

An American syndicate, whose headquarters are at Boston, has secured an option on an extensive coal property in Nova Scotia. The areas bonded comprise 21 square miles in the Springhill coal basin, beginning at a point about 5 miles from the present workings of the Cumberland Coal and Railway Company and adjoining the property of the latter. The price is \$100,000. These areas are as yet undeveloped, but the owners are confident that the main basin, the seams of which aggregate 40 feet in thickness, will be struck there. The American syndicate has secured calyx drills and is at work. The geological survey of Canada has thoroughly explored this section of country, and last summer Mr. Hugh Fletcher, one of the experts of that service, traced the famous Barlow seam into these areas. Nova Scotia mined last year 4,328,000 tons of coal, an increase over 1901 of 840,000 tons. Of this aggregate, Cumberland produced 500,000 tons.

F. P. Chappell, of New York, representing capitalists of that city, has recently purchased a valuable timber property situated at Bridgewater, Nova Scotia. It comprises 210,000 acres. The price paid was \$1,500,000.

It is reported from Toronto that Thomas A. Edison, the famous American inventor, has recently acquired several nickel mining properties in the vicinity of Sudbury. It is understood that he requires a considerable quantity of this mineral in making his new storage battery. Several applications have recently been received

by the Crown Lands Department, and it is surmised that Mr. Edison will construct reduction works in northern Ontario.

A lumber deal has been consummated, says a Sherbrooke, Quebec, dispatch, whereby the Messrs H. Lovell & Sons, of Coaticook, have disposed of their timber property and mills in Gaspé Basin. The price is \$100,000 and the sale comprises 34,000 acres, mills, and all equipment. The purchasers are Americans from Buffalo, who are largely interested in pulp wood. The lumber cut during the winter remains the property of Messrs. Lovell & Sons, but will be taken over by the new company in the spring at a price to be agreed upon.

A syndicate composed of William H. Nichols, president of the Nichols Chemical Company; Jacob Langloth, president of the American Metal Company; and George Martin Luther, general manager of the Nichols Chemical Company, all of New York; and Clement S. Houghton, financial agent, of Boston, have purchased 125,000 shares in the Granby Copper Company, Consolidated, and the above have been made directors therein.

The Sherwyn-Williams Manufacturing Company, of Cleveland, Ohio, has purchased 120,000 feet of land on Atwater avenue, Montreal, on which the company intends erecting extensive paint works. It will employ a large number of hands and install the most modern machinery. The purchase price was \$20,000.

It is learned from Quebec that Mr. James L. Newton, Watertown, N. Y., closed a deal with the provincial government, through which he became owner of two water powers on Pentecost River, in the Lower St. Lawrence and adjoining land, for \$13,500. The water powers are 70 and 54 feet high, respectively, and are considered very valuable properties, as they are situated in a great lumbering district. Mr. Newton intends forming a syndicate to manufacture pulp and timber, and will commence operations as soon as navigation opens.

The Superior Drill Company, Springfield, Ohio; Hoosier Drill Company, Richmond, Ind.; Brennan & Co., Louisville, Ky.; Empire Drill Company, Shortsville, N. Y.; and Bickford & Huffman Company, Macedon, N. Y., have amalgamated under the firm name of the American Seeding Machine Company, with a capital of \$15,000,000, and are seeking a suitable site in Toronto for the erection of a factory to manufacture seeding machines.

The statement comes from Quebec that Mr. Roberts, a millionaire of Philadelphia, has offered Hon. S. N. Parent, premier of the Province of Quebec, \$37,500,000 for 25,000,000 acres of Government lands in the north of the Province.

The New England Asbestos Mining and Milling Company has decided to extend its operations into Canada. With this object in

view it has purchased the property of the Canadian Asbestus Company, Limited, at Black Lake, Quebec, and that of the Beaver Asbestus Company, at Thetford Mines, Quebec. It is probable that the business in this country will be transacted under the title of the New England-Canadian Asbestus Company, of Fall River. Hitherto the company has had its headquarters at Fall River and has confined its attention to developing the mines which it owns in the neighborhood of Eden, Vt. This is said to be practically the only asbestus property of any great value in the United States. The asbestus of America is found mostly in Canada, and the amount exported is about 35,000 tons per annum.

United States capitalists have recently purchased valuable mica properties in the Provinces of Ontario and Quebec.

"The Dominion Grain-Growing Company" is the title of a concern to which letters patent of incorporation have just been issued. The principals in the company are: Francis Goetz, publisher; Henry Brake, contractor; John von der Kammer, manufacturer; George Washington Barker; and Hans Frederick Rhode, attorney at law—all of Chicago. In return for the acquisition of a patent for improvements in sprouting apparatus (granted to John von der Kammer and assigned by him to Hans Frederick Rhode), shares of the face value of \$80,000 are to be issued to the latter. The company's total capital stock is placed at \$100,000.

The Colonial Weaving Company, at Peterboro, Ontario, has a number of American capitalists among its stockholders. Manufacturing operations are to begin at once. Orders are being booked for piece silks, silk ribbons, and woven trade labels. The location was selected on account of electric power being readily and cheaply obtainable.

Letters patent of incorporation have been granted to J. J. McGill, William Strachan, A. V. Roy, of Montreal; Walter W. Allen, of New York; and Benjamin K. Hotchkiss, of Orange, N. J., as the International Rubber Company, with a capital of \$50,000.

A. O. Norton, of Boston, Mass., has purchased the Howard, Suffield, and King copper mines at Suffield and Ascot, near Sherbrooke, Quebec.

The Belmore Bay Gold Mining Company, Sault Ste. Marie, Ontario, has been incorporated with a capital of \$1,000,000 to carry on a mining, milling, and reduction business. The provisional directors include J. C. Maynard, F. J. Sheedlo, and J. Jepsen, of Escanaba, Mich.

Ottawa advices report that the Shepard & Morse Lumber Company, of Boston, has purchased the old Mason sawmill, Bayswater, for \$40,000 cash.

The New York and Boston Dyewood Company, New York City, has been authorized to do business in Ontario, and has appointed A. W. Leitch, of Hamilton, Ontario, to be its Canadian agent.

The Andrews & Johnson Heating and Ventilation Company, of Chicago, Ill., will establish branch works at Hamilton, Ontario.

From Quebec I learn that the great timber limits and mill properties formerly owned by Gaynor Brothers, consisting of 181 square miles on the Pentecost River, have been purchased by Mr. John McLellan, of Syracuse, N. Y. The timbers and properties are stated to be among the most desirable in this Province.

It is announced from St. John, New Brunswick, that a strong company has been formed there to manufacture aluminum. James Robinson, M. P., is at the head, but the principal stockholders are American capitalists from New York. The capital is to be \$1,000,000, and the plant will comprise a factory at St. John and works at Grand Lake, which is the source of the raw material.

The city of Guelph, Ontario, is to have a new iron and steel industry, a number of manufacturers in Montreal and in New York State having organized a company to be known as the Page-Hersey Iron and Tube Company, with a capital of \$500,000. It will manufacture and deal in iron, steel, and other metals, and the head office will be in Guelph.

A company has been incorporated, consisting of J. W. Langmuir and H. C. Hammond, of Toronto; W. B. Rankine, of Niagara Falls, N. Y.; J. R. Smith, of Buffalo; and C. Crosby, of Pittsburg, under the name of the Clifton Hotel Company, Limited, with a capital of \$500,000 and head offices at Niagara Falls, Ontario. The company is authorized to carry on all the usual lines of business associated with a large hotel.

A syndicate of Canadians and Americans has purchased about 6,000 acres of land near Aylesbury, 25 miles north of Moosejaw. The price paid was \$8 an acre. The syndicate proposes to colonize the land. This price is extremely high for land in the west sold in such quantities.

The Canadian Automatic Light Company, Walkerville, Ontario, has been incorporated with a capital of \$40,000 to manufacture hydrocarbon and incandescent burners, etc. The provisional directors include J. H. Berry, W. G. Smith, and E. Hobbs, all of Detroit, Mich.

M. K. Rogers, manager of the Nickel Plate mine, in Princeton, British Columbia, owned by the Standard Oil interests, is negotiating for the coal areas of the Nicola Valley Coal and Iron Company. The coal, which comprises nine seams, varying from 5 to 20 feet,

will be used for coking purposes in connection with the projected operations of the Nickel Plate Smelter.

Plans have been submitted to the Dominion Department of Railways for a tunnel under the St. Lawrence River, to connect Montreal and Longueuil, Quebec. The plans provide for a double-track tunnel from the south shore into the heart of Montreal, where a central station will be located. The width will be 27 feet and the height 21 feet. Its gradients will be $1\frac{1}{2}$ to 2 per cent, and its greatest depth will be 15 feet below the mean level of the river bed. The structure will be of concrete and stone masonry, with a lining of enamel brick. American capitalists are to furnish the money.

The Union Machine Company, Fitchburg, Mass., will open a branch shop at Sherbrooke, Quebec, for the manufacture of screen plates, etc., used in the paper industry. The company has secured a 4-story brick building, about 200 feet long by 75 wide. The capacity of the new shop will be about 100 screen plates daily. The company has quite a large number of customers in Canada.

The Moose Mountain Company, Sault Ste. Marie, Ontario, has been incorporated, with a capital of \$100,000, to carry on the operations of a mining, milling, reduction, and developing company. The leading capitalist and director is C. S. Osborn, of Lansing, Mich.

Interest is again directed to the gold fields of New Ontario, owing to the extensive operations of a company of American capitalists in the Lake of the Woods district. Mr. Henry H. Fryling, Newark, N. J., was in the city last week en route to Clytie Bay, where his company has a force of men at work developing the Indian Jo mine; he stated that they were now down 95 feet and assays had run as high as \$67 to the ton. Mr. Fryling was going to the mine to arrange for the installation of new machinery. The capital of the company is placed at \$500,000.

The O. & W. Thum Company, a Michigan corporation, has established a manufactory at Windsor, Ontario, with a capital of \$35,000, where it will manufacture sticky fly paper, castor oil, etc.

Messrs. J. McNaught, of New York, and W. W. Melville, of Boston, backed by the Central Trust Company of New York, have purchased the Montfort and Gatineau Railway. It will be operated in connection with the Great Northern Railway.

The Brockville, Westport and Sault Ste. Marie Railway, which has been purchased by a syndicate of American capitalists for \$160,000, runs from Brockville to Westport, Ontario. Brockville, the county seat of Leeds County, Ontario, is on the St. Lawrence River, at the end of the Thousand Islands, and is a fine town, having electric lights, gas, sewers, and all modern improvements. It is only

ten hours (365 miles) from New York, and all the villages along the route of this railroad are prosperous, the country being one of the most productive in Ontario. The syndicate which purchased the road is wealthy, including such men as Henry von Minden, president of the United Wine and Trading Company; W. F. Nencken, treasurer of the American Exchange Cigar Company; Gustav Schock, millwright; Val. Schmitt, president of the Federal Brewing Company, Brooklyn; Charles H. Holm, of Holm & Smith, attorneys; and William Volk, director of the United States National Bank, New York.

The Great Lakes and St. Lawrence Transportation Company, an American concern, is building ten vessels to be operated between Duluth, Minn., and Quebec. The dimensions of the vessels are: Length over all, 255 feet; keel, 241 feet; breadth, 41 feet; depth, 18 feet; to carry 2,200 tons on a 14-foot draft. Six will be fitted with triple-expansion engines, with cylinders 15, 25, and 42 inches in diameter and a 30-inch stroke; to which steam will be supplied by two Scotch boilers, 11 by 11 feet, tested to a pressure of 170 pounds to the square inch; the other four will be fitted with triple-expansion engines, with cylinders 14, 25, and 42 inches in diameter and a 30-inch stroke, to which steam will be supplied by water-tube boilers at 225 pounds pressure to the square inch. The value of each steamer is placed at \$150,000. Three of the steamers are being built at Chicago, three at Detroit, two at Superior, and two at Buffalo. Delivery is to be made in June, when the steamers will be engaged in carrying grain to Quebec; pulp wood from the company's mills at Metapedia will be taken as return cargoes.

The L. Schepp Cocoa Company, of New York, is erecting a large branch establishment in Toronto.

The Klotz Company, of Montreal, has been incorporated, with a capital of \$20,000, to take over the business of Klotz & Co. and to manufacture buttons, etc. The provisional directors include J. S. Klotz and J. D. Kuppenheimer, of New York City, and J. C. MacGowan, of Montreal.

W. E. Hunting, of Minneapolis, Minn., will erect a shingle mill, with a capacity of 200,000, on the coast of British Columbia.

There are doubtless many more investments of American capital in Canada which have escaped my notice. In every great enterprise projected American capital is solicited and investors are readily obtained. The rapid development of Canada is largely due to enormous investments of American capital and to the energy of Americans.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *April 7, 1903.*

COAL AND PETROLEUM IN BRITISH COLUMBIA.

Consul A. E. Smith, of Victoria, March 17, 1903, reports that a large area of coal and petroleum lands has been recently discovered in Southeast Kootenai, within 25 miles of a branch of the Canadian Pacific Railway. Mr. Smith adds:

Two hundred and twenty applications for claims have been made, and it is stated that 220 miles of territory have been staked off, the stakes being driven in the deep snow. The country is well wooded. The matter has been kept quiet by the applicants, with the object of preventing a stampede. Despite the number of applications filed with the provincial government, the extensive territory has been taken up by a few speculators. For years past it has been known that this territory contained valuable coal lands. These are all on a Government reservation, and can not be opened until a three months' notice by applicants has been published in the Provincial Gazette.

Consul Charles Deal, of St. John's, Quebec, in reporting on the same subject, under date of March 23, notes that according to newspaper advices the locators are chiefly Americans from Spokane, Wash., who have thus acquired what is said to be as extensive a coal area as the Crow's Nest Pass coal field.

GOLD DISCOVERIES IN ALASKA.

Reports have reached here recently concerning a strike of rich placer diggings in Alaska, in the Circle City mining division, on the tributaries of the Tanana River—a district in which for several years past American miners have made a thorough search for good placer-mining deposits without success until now. The present strike seems to be one of more than ordinary importance, and has caused quite a stampede of miners from this and other districts to the location of the new fields.

At this writing, when particulars are lacking, it is unsafe to predict too much, but the general opinion seems to confirm the belief that a large and productive placer field in American territory has at last been struck. Circle City is practically deserted as a result of the rush.

It is said that there will be a scarcity of provisions, on account of the influx. The Eagle-Circle route is reported to be the best means of reaching the Tanana from Dawson, as the trails by Fortymile and Goodpasture are unbroken, and no supplies are available. From Fortymile to the new diggings the distance is 160 miles.

HENRY D. SAYLOR,

DAWSON CITY, *February 23, 1903.*

Consul.

NOTES.

New Railway Equipment in Canada.—Consul M. J. Burke sends from St. Thomas, April 15, 1903, an extract from the Toronto Globe in regard to the difficulties of Canadian railroads in acquiring equipment for the increasing volume of traffic. It would appear from this article, the consul notes, that large orders for locomotives are being placed with European builders, because American locomotive works can not supply the demand as promptly as desired. The clipping reads:

The exceptional activity in railway circles, with the admitted scarcity of rolling stock and motive power, has led to a large number of orders being placed by the railway companies for new equipment with both Canadian and American firms, and the facilities of the companies have been taxed to the utmost to fill these orders, while the Canadian Pacific has had to go to Scotland and Saxony in order to obtain the locomotives required by the road. During last year the Canadian Pacific placed the following rolling stock in service: Ninety-two locomotives, 51 passenger cars, 3,934 freight cars, 119 vans, 35 miscellaneous, including boarding cars, snow plows, steam shovels, etc.; total, 4,213. The order of the Canadian Pacific recently placed in Saxony calls for 20 compound freight locomotives. The order placed in Scotland calls for 32 single 10-wheel passenger locomotives. The Grand Trunk Railway placed the following equipment in service during 1902: Forty locomotives, 1,906 box cars, 650 flat cars, 122 gondola cars, 10 baggage cars, 5 first-class passenger cars, 10 second-class passenger cars; total, 2,703 cars. It has completed at its London, Ontario, shops 200 flat cars, making a total of 800 built there since June last. They are 36 feet long and of 60,000 pounds capacity.

The Intercolonial Railway has ordered 2 baggage cars, 300 box cars of 80,000 pounds capacity, 140 box cars of 60,000 pounds capacity, 8 refrigerator cars, 9 auxiliary cars, and 21 stock cars. The Intercolonial Railway order for 5 locomotives, which the Canadian Locomotive Company is now working on, is for single 10-wheelers, cylinders 20 by 26 inches; total weight, 175,000 pounds. The Intercolonial expects to add to its passenger equipment this year 20 first-class vestibuled passenger cars, 5 tourist cars, 3 parlor cars, and 6 sleeping cars.

The Canadian Northern Railway has placed the following orders for delivery during the current year: Twenty-seven locomotives from the Canadian Locomotive Works, 6 second-class cars, and 3 baggage and mail cars, to be built in Canada; 4 first-class passenger cars, 3 sleeping cars, and 2 tourist cars, to be built in the United States; 850 30-ton box cars and 50 stock cars, to be built in Canada; and 200 30-ton box cars, to be built in the United States.

Arsenic Deposits in Ontario.—Consul H. S. Culver sends from London, Canada, April 6, 1903, the following newspaper clipping:

The arsenic which for many years baffled the gold miners of Hastings County, Ontario, in their efforts to extract the precious metal from its matrix has become the more profitable of the two minerals. This strange turn of the wheel of fortune has been caused by the virtual exhaustion of the former chief source of supply of

arsenic in Germany and England, together with the superior quality and purity of the Canadian product. A very few years have elapsed since the Canadian Gold Fields, Limited, a wealthy English company—who had successfully introduced the bromo-cyanogen process in treating the previously refractory mispickel at their mines in the township of Marmora—commenced the production of arsenic, of which they are at present turning out some 80 tons per month. That the business is a paying one is apparent, if the statement furnished by an old miner of great experience be correct, namely, that arsenic which can be placed on the cars at Marmora at a cost of \$20 per ton commands \$65 per ton and has been sold for as high as \$87 per ton. But it is also true that this arsenical ore carries from \$4 to \$60 per ton in gold, which experience has shown gives a handsome profit in itself. As gold is not found in conjunction with arsenic in England and Germany, it will be seen that the Canadian miners have an enormous advantage—an advantage so great that the Hastings region can not fail to become in the near future the chief source of the world's supply of arsenic.

As to the quantity of mispickel that this region produces, it is said to be virtually illimitable, as veins have been found in several of the neighboring townships, and doubtless many more will be found, as prospecting will be strongly stimulated by the recent visit of European capitalists in search of arsenic properties.

Gold Mining in Siberia.—Under date of February 27, 1903, Commercial Agent R. T. Greener, of Vladivostock, transmits a report on gold mining in Siberia by a French mining engineer, from which the following extracts are taken:

The principal reasons why foreign capitalists have hitherto paid so little attention to Siberian gold placers may be summed up as follows:

1. The extreme irregularity of the gold deposits, at one point being very rich and at another very poor.
2. The great difficulty experienced in working poor placers, because (a) hydraulic working is, except in rare cases, impossible in Siberia, on account of the lack of water and the want of high pressure, which seldom exceeds 50 to 60 yards, the gold deposits in Siberia being situated in large, flat valleys, with only small streams of water; (b) dredgers on pontoon bridges are very rarely possible for the same reason; (c) excavators and automatic cables produce an economy of only 30 per cent; (d) underground work is restricted and very expensive.
3. The additional income from the sale of goods to workmen of Siberian companies, which is not permissible to a foreign company.
4. The extravagant prices demanded for placers already washed over, which are therefore of small or of unknown value, and only to be determined by expensive works.

This last cause may in a year or two disappear, but the others will remain. It is, of course, possible that rich placers may be discovered which may prove to be profitable investments for foreign capital. The gold veins remain, which are more advantageously situated and will not be so soon exhausted. In these, the future of Siberia's gold mining will lie.

German Exports to the United States.—Consul-General F. H. Mason, of Berlin, under date of April 3, 1903, transmits the following statement showing the value of exports declared for the United

States from Germany during the first quarters of 1902 and 1903, respectively:

Consulate at—	First quarter of 1902.	First quarter of 1903.	Increase.	Decrease.
Aix la Chapelle.....	\$345,039.70	\$580,173.18	\$235,133.48	
Annaberg	522,561.68	781,053.06	258,491.38	
Bamberg	173,456.70	304,171.06	130,715.26	
Barmen.....	1,561,337.55	1,815,903.38	254,565.83	
Berlin	1,942,047.72	2,237,458.82	295,411.10	
Bremen.....	621,303.21	837,749.38	216,446.17	
Breslau.....	303,420.52	297,736.06		\$5,684.44
Brunswick	200,664.53	357,583.33	156,918.80	
Chemnitz	1,789,004.58	2,404,647.87	615,643.29	
Cologne	765,493.28	794,607.16	29,113.88	
Coburg	359,999.00	514,163.00	154,164.00	
Crefeld	575,601.63	604,345.27	88,743.64	
Dresden	317,919.90	304,402.89		13,517.01
Düsseldorf.....	579,967.73	1,273,557.04	693,589.31	
Frankfurt.....	1,671,144.70	1,861,419.31	190,274.61	
Freiburg.....	340,748.05	246,980.41		93,767.64
Glauchau.....	171,133.67	178,037.72	6,904.05	
Hamburg.....	2,279,539.03	2,606,873.93	417,354.90	
Hanover.....	216,762.67	198,391.56		18,371.11
Kehl.....	446,638.95	526,939.56	80,300.61	
Leipzig.....	2,361,595.18	2,187,490.39		174,104.79
Magdeburg.....	843,430.74	992,321.07	148,891.23	
Mannheim.....	1,126,581.36	1,239,445.47	112,864.11	
Mainz.....	466,804.88	556,800.42	89,995.54	
Munich.....	141,552.82	158,122.82	16,570.00	
Nuremberg.....	737,289.78	1,025,239.56	287,949.78	
Plauen.....	1,192,241.40	1,446,219.17	253,967.77	
Solingen.....	342,938.13	365,448.50	22,510.46	
Stettin.....	665,737.78	382,489.03		283,248.75
Stuttgart.....	265,077.87	356,684.95	91,607.08	
Weimar.....	177,485.79	232,335.64	54,849.85	
Zittau.....	281,573.77	373,757.69	92,183.92	
Total	23,786,094.30	28,192,549.59	4,406,455.29	

Flax Market in Germany and Bohemia.—Consul Hugo Muench sends the following from Zittau, March 24, 1903:

Referring to my report of August 21, 1902,* I may add that the unusually cold and wet summer and fall of 1902 affected flax culture in the Russian provinces from which the raw material for the linen industry of Germany and Bohemia is imported. The excessive moisture did not affect the natural quality of the fiber, but retarded its development. In quantity, too, the crop is reported to be average. Frosts interrupted the retting process. According to report, many of the producers withdrew the fiber from maceration, dried and stocked the same, and prepared to resume work during the warmer season of 1903. The proportion of the crop thus withheld from the market can not be established, but it must be large, as the flax market,

*ADVANCE SHEETS No. 1451 (September 23, 1902).

which, owing to increased production, was expected to drop, has, on the contrary, perceptibly stiffened. The demand for flax yarns has also experienced a decided increase, prices have risen, and the various spinning establishments in these parts are well supplied with orders. If there is any surplus stock of prepared flax in the hands of our American producers, now is the time to place it on this market. Either this office or the establishment of H. C. Mueller ("Flachs-Spinnerei Hirschfelde, in Sachsen) will be glad to answer all pertinent inquiries.

Harbor Works in Turkey.—Consul-General C. M. Dickinson sends from Constantinople, March 27, 1903, a clipping from the *Levant Herald* in regard to the completion and formal transfer of the Haidar Pasha quay and harbor works at the terminus of the line of the Anatolian Railway Company, which is constructing the line to Bagdad and the Persian Gulf. The clipping reads:

The technical commission appointed to take provisional delivery of the Haidar Pasha quay and harbor works carried out its task yesterday in the company of Vice-Admiral Eumer Pasha, M. Krebs, inspector-general of the Antolian railways, and MM. Augier and Laporte, respectively contractor and subcontractor for the works. The commission first inspected the breakwater, which is 600 meters (1,968 feet) in length, and which is provided with electric lights and fog bells at each extremity. It afterwards proceeded to the quay and examined the landing stage—in course of construction—for the steamers of the Mahsusseh, the steam cranes, the several warehouses, the building for the custom-house—which is provided with sixteen electric lights—the police station, and the electric works. The quay is 550 meters (1,804 feet) in length, and the sea is sufficiently deep to allow steamers of heavy draft to go alongside.

Lithographic Stone Found in Greece.—Consul D. E. McGinley, of Athens, March 12, 1903, reports that large deposits of stone suitable for lithographic purposes have been discovered and opened in Thessaly. The deposits are situated on a good highway, 6 or 7 miles from the Pharsala station, on the new railroad now being constructed between Athens and Larissa, Greece. Greek experts report that this stone is far superior in quality to the best lithographic stone heretofore known in Europe. Mr. N. An. Meletopoulos, mining engineer, Athens, will be pleased to give further information relative to this stone to any who may desire it.

Hungary's Preparation for Specie Payments.—Consul F. D. Chester sends the following from Budapest, March 11, 1903:

The Hungarian and Austrian Ministers of Finance have come to a definite understanding with the Bank of Austria-Hungary with

regard to the assumption of specie payments. They have agreed to coin 66,000,000 crowns (\$13,398,000) more of 5-crown (\$1.015) silver pieces, using up for that purpose 33,000,000 of the present stock of silver florins (\$13,398,000), thus raising the total amount of 5-crown (\$1.015) pieces in circulation to 130,000,000 crowns (\$26,390,000). The ministers have also made preparations for the division of the Austro-Hungarian Bank into separate national banks. After payment of liabilities the two national treasuries are to pay over to the bank the necessary gold to call in the old State notes in the proportion fixed by the Hungarian and Austrian Parliaments.

Exposition at Sillein, Hungary.—Consul F. D. Chester sends the following from Budapest:

Plans are being made to hold an industrial exposition at the city of Zsolna (Sillein) in North Hungary, from August 15 to September 20 of this year. It will include Hungarian manufactures, farming machines and implements, motors, and general machinery. There will be a special section for homemade articles, women's handiwork, gardening, and apprentices' work. As the export of embroideries, etc., from Hungary to the United States in 1900 was over \$5,000 in value, this exposition will interest some of our importers.

Swedish Wood-Pulp Market.—Consul R. S. S. Bergh writes from Gothenburg, April 22, 1903:

Swedish newspapers state that by reason of the unsatisfactory condition of the wood-pulp market, Swedish and Norwegian manufacturers have agreed to diminish their production. According to reports, 39,834 tons of paper were exported from Gothenburg during the year 1902, or nearly 64 per cent of the total export from Sweden, and 7,497 tons of pasteboard or building paper (nearly 92 per cent of the whole). The quantities of wood pulp exported from Gothenburg were: Chemical, dry, 40,064 tons, or nearly 25 per cent; chemical, moist, 4,753 tons, or more than 47 per cent; mechanical, dry, 22,339 tons, or more than 69 per cent, moist, 7,604 tons, or more than 14 per cent of the total export from Sweden.

Request for Agricultural Machinery in Russia.—Vice-Consul Hernando de Soto, of Warsaw, writes, March 27, 1903, that he has received a request for quotations on locomobiles—not too light—of 6, 8, 10, and 12 horsepower, with one or two cylinders, combined with thrashing machines; special thrashing machine for clover;

harvesting machines of all kinds; farming implements and combined extirpators. Full particulars are desired in regard to net and gross weight and the kind of fuel used. Prices should be quoted f. o. b. New York or delivered at Stettin or Danzig, Germany.

Discovery of Asbestos in Siberia.—Under date of April 4, 1903, Consul-General W. R. Holloway writes from St. Petersburg:

The Official Messenger states that rich mines of asbestos have been discovered in the Irkutsk district, $1\frac{1}{2}$ miles from the Kitoy River, and a company has been organized to develop them. Preliminary tests are said to show that at a depth of 1 foot the asbestos is equal in quality to the Canadian, and superior to the Alpine, product. The Kitoy River affords ample water power and cheap transportation to the railroad. The owners are receiving numerous requests from abroad for samples.

Odessa-New York Steamship Service.—Consul T. E. Heenan writes from Odessa, March 11, 1903:

During the past six months I have received letters from parties in the United States asking for confirmation of newspaper statements relating to a line of steamers to be run by the Volunteer Fleet organization between Odessa and New York. I am advised by the director of the Volunteer Fleet that his organization has no intention of engaging in the emigrant or other trade between Odessa, Italian ports, and New York. The Deutsche Levante Linie is scheduled to run thirteen trips during the present year from New York to Odessa, direct and return.

Duty on Butter in Guadeloupe.—Consul L. H. Aymé writes from Guadeloupe, March 17, 1903:

In a report of April 23, 1902,* the abolishment of the octroi tax upon a number of articles, notably butter, was noted. This duty has now been reimposed. A test case involving an importation of butter has just been decided in favor of collecting the octroi. As all importations had been made under bond for the payment of this duty in case of such a decision, the island has not lost any revenue. I am informed that the French manufacturers of butter, particularly of those qualities known as "red butter," are making efforts to drive out the American product by demanding that each invoice shall be sent to France for analysis as to purity. This would involve a

*ADVANCE SHEETS No. 1348 (May 22, 1902).

delay of many weeks, and the butter might readily deteriorate in this hot climate. All butter is analyzed by the colonial chemists and heavy penalties are imposed for any impurities discovered, but not once has our product failed to pass the most rigid tests.

Trade of Peru in 1901.—Under date of April 1, 1903, Minister Dudley, of Lima, transmits extracts from the annual report of the Lima Chamber of Commerce, with translation, as follows:

Notwithstanding the low prices ruling in foreign markets for our principal articles of export—silver, copper, and sugar—the year 1902, although perhaps less favorable for business than the previous year, has nevertheless been a prosperous one. At the beginning of January last year, sugar was quoted in Liverpool at 8s. 3d. (\$2); it fell as low as 7s. 1½d. (\$1.73) in April, and afterwards rose again slowly until it closed at 9s. (\$2.19) in December. Copper opened at £49 (\$238.46) after fluctuating, reached £55 12s. 6d. (\$270.70), and closed at £50 (\$243.33). Bar silver, which in January was quoted at £28 8s. 4d. (\$138.29) per ounce (troy), fell each month until it reached £25 6s. 4d. (\$123.20). In the first half of the year 1902, imports represented the value of 15,177,990 soles (\$7,391,681). The export of ores reached 17,508,484 soles (\$8,526,632), against 16,959,588 soles (\$8,259,319) in the previous year. The revenues collected in the custom-houses in the first half of 1902 have been 3,720,146 soles (\$1,811,711).

Conditions in Honduras.—Under date of April 15, 1903, Consul A. K. Moe informs the Department of the capitulation of Tegucigalpa on that day. He adds that consular mediation has been successful. A proclamation published at Tegucigalpa March 15, 1903, by the chief of police, prescribed the rights and duties of foreigners, as follows:

The Government will continue to guarantee, effectually, the rights of foreigners who comply strictly with their duty of neutrality, to which they are obligated by their situation and nationality. But it is made known to them, nevertheless, that the police and martial laws, together with the law of foreigners in force in the country, apply to them if they fail in their duty of neutrality in violation of this proclamation.

All tavern or hotel proprietors shall furnish daily lists of the names of the guests at their establishments, and the police shall at all times have access to these hostelries.

Mineral Exports of Honduras.—Consul W. E. Alger reports from Puerto Cortes, April 18, 1903:

Honduras exported, in 1902, metals to the value of 2,346,990.26 pesos (\$938,976). In 1898 the exportation only amounted to 1,501,114.18 pesos (\$600,445); therefore the production has increased over 50 per cent in four years. The metals exported were:

	Ounces.
Gold	23, 235
Silver	1, 010, 204
Copper	25, 198

Crops in Argentina.—Consul J. M. Ayers sends the following from Rosario, March 2, 1903:

The harvest of this year in the Argentine Republic is unprecedented. Exact data can not yet be obtained, but the best estimates show that the crop of corn (maize) will be approximately 3,500,000 tons, of which 1,000,000 tons will be retained for home consumption and for seed, leaving for export 2,500,000 tons. Of this total product, the province of Santa Fé alone will produce about 1,600,000 tons. The figures for wheat are probably from 5 to 10 per cent higher. The crop of linseed will be about 1,300,000 tons.

Exports from Puerto Cabello.—Consul L. T. Ellsworth transmits from Puerto Cabello statements of the exports from that district for 1902, as follows:

Coffee	pounds...	11, 047, 973
Cocoa.....	do.....	1, 959, 821
Copra.....	do.....	257, 710
Copper.....	do.....	17, 580
Cotton	do.....	14, 045
Corn.....	do.....	29, 695
Cattle.....	head...	1, 968
Quinine	pounds...	1, 484
Hides.....	do.....	824, 529
Skins:		
Deer	do.....	24, 848
Goat.....	do.....	154, 118
Spurge.....	do.....	1, 014
Sarrapia.....	do.....	1, 166
Timber	do.....	788, 436

Waterworks for Guayaquil.—Vice-Consul-General R. B. Jones reports from Guayaquil, March 19, 1903, that Señor L. Garcia, of that city, has sailed for New York to make arrangements for the construction of a system of sewers, fire mains, and pumping station for Guayaquil. Señor Garcia will remain in New York about two weeks, and can be seen through W. R. Grace & Co. or G. Amsinck & Co. As he takes with him all the necessary data, Mr. Jones suggests that it would be well for American capitalists to bid on this contract. Funds for the work have been provided by the imposition of an export duty on cocoa.

Shark Fins in Nicaragua.—Consul A. L. M. Gottschalk writes from San Juan del Norte, March 11, 1903, in regard to the use of shark fins for industrial purposes in the United States. He says:

Sharks exist in large numbers on this coast. The Nicaraguan

fishery laws seem to permit of their being caught as vermin, and there appears to be no export duty on any industrial product derived from them. A number of persons here believe that they could deal with the United States in shark fins or in shark backbones and skins. The former are used extensively in some countries in the making of walking canes; the latter are made into a leather employed for sword grips and fancy articles. Large quantities of these products could be sent to the United States, were there a market for them. I should be glad to communicate with parties interested, if these articles are marketable in the United States.

Duties on Confectionery and Petroleum in Costa Rica.—

Consul J. C. Caldwell writes from San José, March 21, 1903, that by a decree of March 20, glucose is to pay a customs duty of 5 cents (2.325 cents gold) per kilogram (2.2046 pounds); filberts, sweet almonds, pine kernels (pifiones), and walnuts, a duty of 10 cents (4.65 cents gold) per kilogram; comfits and confectionery, jellies, nougat (almond paste), and preserved fruits, a duty of 50 cents (23.25 cents gold) per kilogram. This decree is to protect a local candy factory.

Another order, of March 21, admits crude petroleum free of duty.

Fiscal Agency of Costa Rica at Limon.—Vice-Consul C. S.

Caldwell writes from San José, March 16, 1903:

According to the Limon News, a contract has recently been made between the Government and the United Fruit Company, by the terms of which the company is to act as the fiscal agent of the Government at Limon. The company will receive a commission of 25 cents on each 100 colons received or paid, and will pay postal orders.

Nicaraguan Duties on Soap.—Consul A. L. M. Gottschalk,

of San Juan del Norte, March 14, 1903, reports that by presidential decree of February 24 all duties upon the importation of raw materials for the manufacture of common, or laundry, soap are removed. The Nicaraguan tariff will probably be changed accordingly.

Demand for Machinery in South Africa.—Under date of

March 14, 1903, Consular Agent W. D. Gordon, of Johannesburg, informs the Department that he is in receipt of inquiries for data relative to cotton gins and equipment, brickmaking and cane-sugar

machinery, and oil presses for extracting oil from peanuts and other nuts of a similar nature. The consular agent adds that if catalogues, with prices and shipping weights, are sent him, he will place them in the hands of interested parties.

Communication between Italy and the Balkan States.—

Consul F. D. Chester reports from Budapest, March 13, 1903:

The question of quick communication between Italy and the Balkan States (Servia and Bulgaria) via Fiume and Belgrade has always been one of prime interest to the province of Croatia-Slavonia. The Chamber of Commerce in Eszék at its last sitting voted in favor of a nine-hour express train, to be run daily between Zimony and Zagrab (Agram), with connections with Belgrade and Fiume. At present it takes twelve hours from Zagrab to Zimony and the connection from Fiume is not close.

Electric Autocar in Belgium.—

Consul-General Richard Guenther writes from Frankfort, April 7, 1903, that, according to the Journal de Bruxelles, the International Sleeping Car Company has given orders for building an electric autocar, which by August next will be running upon the Belgian State Railroad between Brussels and Ostend. The distance of 125 kilometers (78 $\frac{1}{8}$ miles) will be covered, it is stated, in less than an hour. The car will carry 40 passengers.

Great Britain's Coal Supply.—Consul F. W. Mahin writes from Nottingham, under date of March 23, 1903:

According to an English expert, the supply of coal yet remaining to be mined in the United Kingdom amounts to 80,684,000,000 tons, which, at the present rate of mining, would last three hundred and seventy years. The same authority gives the total output of the world in 1900 as 767,636,204 tons, of which Great Britain produced 229,000,000 tons, or 30 per cent, and the United States 245,000,000 tons, leaving a balance of about 35 per cent for the rest of the world.

British Inquiry for Can Openers.—Consul Marshal Halstead, of Birmingham, under date of March 28, 1903, says that he has an inquiry for the address of the Brown & Dowd Manufacturing Company, makers of the "Never-slip" can opener.

Machines for Trimming Wall Paper.—Consul Marshal Halstead writes from Birmingham, March 30, 1903:

I am informed that in England scissors are still used to cut the selvage of wall papers, while in America there is in general use a selvage-trimming machine, and I would be glad to have a catalogue of such machines.

British Inquiry for Steel Castings.—Consul Marshal Halstead, of Birmingham, March 24, 1903, says that a manufacturer of anchors wishes to be put into communication with the makers of large steel castings and forgings. He wishes to hear from manufacturers who are able to take orders for and make early deliveries.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
M. H. Twitchell, Kingston...	Apr. 30, 1903	Agricultural conditions....	Department of Agriculture.
E. A. Creevey, Glauchau.....	Apr. 10, 1903	Weavers' strike.....	Department of Labor.
G. W. Roosevelt, Brussels.....	Apr. 18, 1903	Actuaries in Belgium.....	Do.
E. Schneegans, Saigon.....	Mar. 27, 1903	Rice.....	Department of Agriculture.
G. H. Murphy, Frankfort.....	Apr. 30, 1903	Divorces.....	Bureau of Education.
J. J. Langer, Solingen.....	Apr. 29, 1903	Cattle census.....	Department of Agriculture.
J. C. Covert, Lyons.....	.....do.....	Blue Hortensia.....	Do.
J. G. Lay, Barcelona.....	Apr. 23, 1903	Chemical fertilizers.....	Do.
W. P. Atwell, Roubaix.....	Apr. 28, 1903	Alcoholism.....	Department of Labor.

FOREIGN REPORTS AND PUBLICATIONS.

Economic Changes in the Far East.—The following particulars relating to the economic changes in the Far East, caused by the construction of the Siberian and Chinese railways, are extracted from the report of M. Witte, the Russian Minister of Finance, which appeared in the London Board of Trade Journal, April 2, 1902:

Prior to the construction of the Siberian Railway and of its latest link—the Chinese Eastern Railway—the Transbaikal, as well as the province of the Amur, had a commercial and industrial existence of its own, quite foreign to the commercial and industrial interests of Russia. The smallness of its population and the absence of any industries rendered absolutely unproductive and useless from a fiscal and economic point of view the maintenance of a customs protection of so extended a frontier. The only possible trade route was by way of Lake Baikal.

Up to the time of the construction of the Siberian Railway, the commercial situation was as follows: The ports of the Russian littoral on the Pacific Ocean—and, most important amongst them, Vladivostock and Nicolaefsk—enjoyed the advantages of free ports. By their agency the Russian colonies, established for the most part on the maritime littoral, on the banks of the Amur and its affluents, were provided with foreign goods, and importations by the land frontier, on the Chinese side, consisted of Chinese products exclusively, such as tea, silk, etc. The town of Harbin, which almost from the commencement of the construction of the Manchurian railways has been the principal administrative railway center, is situated on the right bank of the River Sungari, at a point where the main line of the Chinese Eastern Railway divides into two parts, one going to Dalny and the other to Port Arthur. Barely five years ago the site on which the town stands was a desert spot. At the present time the three parts into which the town is divided contain 20,000 inhabitants. Its situation is a particularly favorable one; standing as it does in the center of Manchuria, with the railways which traverse the country radiating from it, and on a navigable river which waters nearly the whole of Manchuria, it seems destined to become a great commercial and industrial center.

Dalny is the terminus of the southern branch of the Chinese Eastern Railway. The port, which is admirably situated on the Gulf of Talienwan, will, when various improvements are completed, form a part of Victoria Bay, making it about the same size as the port of Odessa. The basin will be deepened in its widest part to 28 feet, which will suffice for the largest steamships, and the rest of the basin will have a depth of 18 feet to accommodate coasting vessels. It is expected that these works will be finished in about a year. The future of Dalny as a commercial port depends to a great extent on the quantity of merchandise brought there by the Chinese Eastern Railway. The existence of a coal depot at a seaport is very necessary for the development of steam navigation. It is therefore important to facilitate the importation of coal from southern Manchuria. The working of the Yangtai collieries has been undertaken by the Chinese Eastern Railway for supplying its own needs, and it is hoped that the product of the coal mines situated near the Southern Manchuria Railway will be sent direct to Dalny.

M. Witte urges that, while Russian traders should be attracted to Dalny, the establishment of commercial relations with other countries should also be encouraged in every possible way.

Industrial Conditions in Singapore.—An article in a late issue of the *Revue du Commerce Extérieur*, of Paris, is summarized as follows:

Singapore occupies the most advantageous position upon the great route of the Far East. It controls the entire Malay Peninsula, with the exception of Perak, Kedah, and the province of Wellesley. It is the principal market for the productions and the supplies of British and Dutch Borneo, of German and Dutch New Guinea, Celebes, Moluccas, etc. At the same time it is the port of export of the independent State of Johore for iron bar and pepper. The productive industries of Singapore are limited, comprising the wharves, docks, general warehouses, and workshops for naval construction, which give employment to some 3,000 workmen and coolies; three establishments for building machines and small boats (of the Tanjong-Pagar Company); a tin foundry—the largest in the world for this metal—belonging to the Straits Trading Company, of Singapore; fourteen establishments (three French) for preserving pineapples; eight steam sawmills, seven of which are Chinese and one European; one important manufactory of cocoa oil, which, by a special process invented by a Frenchman, produces a superior article, free from the odor peculiar to the cocoanut, which is utilized for culinary purposes; several drying houses for rattan, some Chinese manufactories of indigo and one of gutta-percha, where the gum is extracted from the fresh leaves by a German process. This factory belongs to the Netherlands Gutta-Percha Company. The manufactories of tapioca and the coffee plantations, which flourished in Singapore twenty years ago, have disappeared.

As agricultural products destined for exportation, Singapore has only pineapples, cocoanuts, and a few other exotic fruits. Malayan by its geographical situation, Singapore is Chinese by the predominant element of its population and its commerce. The time is not far distant when the Chinese will be able to dispense with the agency of the European trader and to deal directly with Europe and America. Already they are becoming owners of vessels sailing under the English or Dutch flags. When an old vessel is to be sold there is always a Chinese purchaser. The majority of the stock of the Straits Steamship Company is owned by Chinese, and the administrative board is in part Chinese. The future success of the intercolonial navigation companies in the Far East lies in the combination of European shipowners and shareholders with Chinese capitalists, shipowners, and merchants.

Importance of the Milan Silk Market.—The *Moniteur Officiel du Commerce*, Paris, April 9, 1903, says:

The annual report of the Association of the Italian Silk Industry of Milan contains the following interesting statistics regarding the production and consumption of silk in 1902 and the constant progress of the Milan market:

The stocks of silk existing in the markets of the world on December 31, 1902, comprised 3,628,688 pounds, against 5,718,222 pounds in the preceding year—a decrease of 37 per cent. The average of stocks kept over for the five preceding years was 4,865,506 pounds. This shows that the consumption of silk has progressed until to-day it nearly balances the production. The last crop of cocoons in the world was estimated at 37,478,200 pounds, which, compared with the production of 1901, shows a diminution of 2,204,600 pounds, occasioned for the most part by the insufficiency of the crop in China. This is also a factor in the increased price.

Milan has taken a preponderating place in the commerce of silk. Italy exported 18,890,776 pounds of silk in 1902, of which 9,720,963 pounds were raw silk and 9,169,713 pounds were the manufactured article. In 1901, the Italian exportation of silk comprised 8,407,903 pounds of raw silk and 9,181,939 pounds of manufactured, a total of 17,589,842 pounds, or an increase of 1,300,934 pounds in 1902. The export from Milan to the United States, which is the greatest purchasing market in the world, has increased in noticeable proportions. Last year Milan sent 11,953 bales of raw silk to the American market, against 10,045 bales in 1901 and 8,158 bales in 1900. The import at Milan of cocoons of foreign origin and of Asiatic silks increases from year to year and proves the prosperous condition of the silk industry in this country. So considerable has this importation become that the local commerce has demanded a direct transport service between the ports of the Levant and Venice. French and Swiss houses have been obliged not only to establish agencies here, but also warehouses, to facilitate their transactions with Milan, which has become to-day the first market in the world for silks.

Commercial Movement of Montenegro.—The following is taken from the *Moniteur Officiel du Commerce*, Paris, April 2, 1903:

Figures regarding the trade of Montenegro are not available, except those published by Austrian authorities. In 1901 the imports from Austria amounted to 7,867 metric quintals (1,734,359 pounds), composed chiefly of food products and building materials, as below:

Article.	Quantity.		Article.	Quantity.	
	<i>Metric quintals.</i>	<i>Pounds.</i>		<i>Metric quintals.</i>	<i>Pounds.</i>
Sugar	2,311	509,483	Iron and steel.....	154	33,951
Coffee.....	606	133,590	Tissues.....	159	35,053
Rice.....	745	243,447	Tissues of cotton.....	94	20,723
Flour.....	195	42,990	Glassware.....	48	10,582
Vinegar.....	127	27,998	Beer.....	40	8,818
Pastes.....	73	16,094	Soap.....	152	33,510
Alcohol.....	127	27,998	Matches.....	25	5,512
Lumber.....	1,866	411,378	Petroleum.....	419	92,373

The increase amounted to 1,861 metric quintals (410,276 pounds) over the figures for 1900.

As to the products exported from Montenegro to Austria, they are those of a poor agricultural country and were, in 1901:

Article.	Quantity.		Article.	Quantity.	
	<i>Metric quintals.</i>	<i>Pounds.</i>		<i>Metric quintals.</i>	<i>Pounds.</i>
Charcoal	1,463	322,533	Dried or prepared plants....	131	28,880
Olive oil.....	733	161,597	Sumac.....	1,050	231,483
Fresh fruits.....	616	135,803	Wool.....	90	19,841
Animal spoils.....	418	92,152	Sheepskins, undressed.....	70	15,432

The exportation of sheep to Marseilles has taken on a certain development. It began in 1895 with 4,000 sheep; in 1902 the number had increased to 20,600. The average price in the country is \$2.75 per head.

Limes in the West Indies.—The London Board of Trade Journal, April 16, 1903, quotes from the Agricultural News, of Barbados, as follows:

The lime industry of the West Indies, although small as compared with sugar and cacao, is yet of considerable importance at Dominica and Montserrat, the former supplying more than one-half the total exports of the island. At Dominica, lime juice alone (raw and concentrated) to the value of \$156,759 and lime (or essential) oil to the value of \$14,366 were exported during the year 1901-2. These figures do not include the exports of green and pickled limes, in which a considerable trade is carried on with the United States and Canada. The steady increase in this trade may be gathered from the following statistics of exports:

	Barrels, cases, etc.
<i>Exports of green limes to the United States.</i>	
1898.....	3, 534
1899.....	6, 743
1900.....	6, 633
1901.....	7, 412

	Barrels.
<i>Exports of pickled limes to British North America.</i>	
1900.....	428
1901.....	904

The value of green limes in the United States varies from \$5 to \$10 per barrel, according to season and demand. From a barrel of limes, 7 to 8 gallons of juice are obtained. The juice is shipped either raw or in a concentrated form. The latter is boiled down to a density of 10 or 12 to 1—that is, 10 gallons of raw juice to 1 gallon of concentrated. It takes on an average 80 barrels of limes to give 54 gallons of concentrated juice. The value of raw lime juice in the London market is about 10d. (20 cents) per gallon and of concentrated juice about \$56 per pipe. The production of essential oil of limes forms an important branch of the industry. The oil is obtained from the rind of the ripe fruit and is exported either as "hand pressed or rind oil" or as "distilled oil." In the preparation of the former, the oil is extracted by the *écuelle* process before passing the fruit through the mill. Distilled oil is recovered from the juice, after milling, by the ordinary process of distillation. The yield of rind or hand-pressed oil averages about 3 ounces per barrel of fresh limes, and it is worth in London at present prices about 97 cents per pound. Distilled oil is produced at the rate of about 2½ gallons for each hogshead of concentrated juice and is worth in London about 43 cents per pound.

At Montserrat lime cultivation has formed for many years one of the chief agricultural industries. The yield of limes when the trees are in full bearing is at the rate of about 160 barrels per acre. The yield of juice is calculated at about 8 gallons for each barrel of limes. The cultivation of limes at Jamaica, Trinidad, and Antigua is carried on to a limited extent, the value of lime juice exported from these islands during the year 1900 being \$36,479, \$1,927, and \$949, respectively. In the other islands the lime tree, although well known and found in nearly every garden, is grown to meet local requirements only.

Agricultural Situation in Guatemala.—The following is summarized from *Berichte über Handel und Industrie*, Berlin, March 27, 1903:

The chief source of industry in Guatemala continues to be coffee culture. The last statistics show that 146,407 acres are devoted to this culture, planted with 67,054,928 coffee trees. The most suitable temperature for coffee plantations is

found to be from 60° to 90° F. The tree thrives at an altitude of from 500 to 4,500 feet above the level of the sea, and even higher. The quality of the berry is determined by the altitude at which it is grown; trees at from 2,000 to 2,500 feet produce small berries with little color; at an altitude of over 3,000 feet the berries are large, of a beautiful blue color, and good appearance. The coffee grown above 4,000 feet is considered the best and commands fancy prices on the London market. The production of coffee in Guatemala has constantly increased, as the following statement shows:

Year.	Quantity.	
	<i>Centners.*</i>	<i>Pounds.</i>
1881	260,373	28,641,030
1891	524,495	57,694,450
1901	742,702	81,697,220

* 1 centner=110 pounds.

In spite of the increase of production, the total value of the coffee has experienced a decrease, a result of the low prices in the American and European markets.

The planting of sugar cane has made remarkable advances in the last few years. In spite of the low prices prevailing, there are some 66,880 acres now occupied in sugar-cane plantations. The export of this product is directed chiefly to the United States and Central America. Beans, maize, wheat, and potatoes are grown, but not in sufficient quantities to meet the home demand.

It is estimated that 17,912 acres are devoted to the culture of tobacco, with 17,161,700 plants, which yielded, in 1902, 14,740 centners (1,621,400 pounds).

Bananas, which find so ready a market in the United States, could be planted upon a large scale, but this production is also unimportant, only 22,350 acres being devoted to it, which produced, in 1902, 2,106,908 bunches. The great export of bananas from Honduras would seem to be a good precedent for this culture, but except for the inland consumption bananas are not planted.

Electric Tramway on Ice.—A recent edition of *Los Inventos Modernos*, of Barcelona, has the following:

The capital of the Russian Empire, divided into numerous islands by the Neva and the many canals which cross it, maintains communication by means of 150 bridges. The majority are bridges of boats, but there are some of modern construction, which are a credit to Muscovite art. These means of communication are, however, insufficient, in view of the traffic and the immense area of St. Petersburg, and in the summer season an extraordinary number of canoes and steamboats traverse the canals and especially the broad river. When winter comes, as it does so early in the north (navigation being closed from the month of November to April), the bridges of boats are withdrawn and there are substituted, at the most important streets, bridges of wood mounted upon the ice and destined exclusively for the use of pedestrians. As soon as the ice permits two electric tramways are installed over the Neva. One goes from the left shore to the island of Petrowsky; the other starts from the English quay opposite the Senate house, and terminates in the island Basilio, near the Academy of Fine Arts. On both lines the electric current is carried by trolley, the wooden posts which support the conducting wires being solidly imbedded in the ice.

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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications are exhausted, and the Department is therefore unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

VIII PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Vol. 26 (1903).—Briquettes as Fuel in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1893, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

X VALUES OF FOREIGN COINS AND CURRENCIES.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, 1884-1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	\$0.96,5	Gold—argentine (\$4.82,4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*....	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc .....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis .....	.54,6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile .....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$3.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon (\$5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador † .....	.....do	Sucre.....	.48,7	Gold—10 sucres (\$4.8665); silver—sucra and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland .....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,9).
France	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling.	4.86,6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma .....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti .....	.....do	Gourde.....	.96,5	Silver—gourde.
India ‡	Gold	Rupee .....	.32,4	Gold—sovereign (\$4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira .....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen .....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia .....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin.....	.40,2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and $1\frac{1}{2}$ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$2 (\$2.02,7).
Peru.....	.....do	Sol .....	.48,7	Gold—libra (\$4.8665); silver—sol and divisions.
Portugal .....	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶ .....	.....do	Ruble .....	.51,5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster .....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

¶ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1898.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia	do	Dollar until 1880; bolivi- ano there- after.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	do	Peso .....	.96,5	.91,8		.69,9	.68	.85
China	do	Haikwan tael.	1.61					
Colombia	do	Peso .....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do .....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold	Pound (100 piasters)		4.97,4	4.90	4.94,3		
India	Silver	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold.....	Yen.....	.99,7	.99,7		.99,7	.99,7	.99,7
	Silver.....				.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.34,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡.....	Gold and silver.	Florin.....	.40,5	.38,5				
Peru.....	Silver	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1895.	1898.
Austria-Hungary*.	Silver	Florin.....	\$0.38,1	\$0.34,1				
Bolivia	do	Boliviano .....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.49,1	\$0.42,4
Central America.....	do	Peso .....	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee.....	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen.....	.83,1	.74,5	.66,1	.55,6	.52,9	
Mexico	do	Dollar .....	.83,7	.75	.66,6	.56	.53,3	.46
Peru.....	do	Sol.....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§.....	do	Ruble.....	.61,7	.55,3	.49,1	.41,3	.39,3	
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	

* See footnote to Austria-Hungary under Table A.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1	\$0.43,6	\$0.42,8
Central America.	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China.....	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael....	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
Colombia.....	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Ecuador †.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
India.....	do.....								
India.....	Silver rupee‡.	.20,3	.20,7	.20,8					
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †.....	Silver sol.....	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	\$0.41,3	\$0.40,3	\$0.38,2	\$0.38,4	\$0.36,1	\$0.35,2
Central America.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
China.....	Amoy tael.....	.66,9	.65,1	.61,8	.62	.58,4	.57
	Canton tael.....	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8
	Chefoo tael.....	.63,9	.62,3	.59,1	.59,3	.55,8	.54,5
	Chinkiang tael..	.65,3	.63,6	.60,4	.60,6	.57	.55,7
	Fuchau tael.....	.61,8	.60,2	.57,2	.57,4	.54	.52,7
	Haikwan tael....	.68	.66,3	.62,9	.63,1	.59,4	.58
	Hankau tael.....	.62,6	.60,9	.57,9	.58	.54,6	.53,3
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.62,6	.59,5	.59,6	.56,1	.54,8
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53,4
	Shanghai tael....	.61,1	.59,5	.56,5	.56,7	.53,9	.52
	Swatow tael.....	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6
Colombia.....	Takao tael.....	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3
	Tientsin tael....	.64,8	.63,1	.59,9	.60,1	.60,1	.55,2
Mexico.....	Silver peso.....	.41,1	.40,3	.38,2	.38,4	.36,1	.35,2
Mexico.....	Silver dollar.....	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3
Persia.....	Silver kran.....	.07,6	.07,4	.07	.07,1	.06,6	.06,5

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Batman or tabriz	Persia	6.49 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	520 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333 $\frac{1}{3}$ (1 $\frac{1}{3}$) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33 $\frac{1}{2}$ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2.6997 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS NO. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddan.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.5096 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4.9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	113.5 bushels.
Do.....	Spain (salt).....	4,750 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1493 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.8288 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¾ pounds.
Sagene.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	do.....	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curacao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quintal (100,000 grams) equals 220.46 pounds.
 Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6418 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, will be transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and will be consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

A new bureau, to be known as the Bureau of Trade Relations, will, under authority of section 11 of the act of February 14, 1903, be organized in the Department of State on the 1st of July, to formulate, for the instruction of consular officers, the requests of the Secretary of Commerce and Labor; to prepare from the reports of consular officers for transmission to the Secretary of Commerce and Labor such information as pertains to the work of the Department of Commerce and Labor; to transmit consular reports on special subjects, other than commercial, to various branches of the Government service; and to compile information for the use of the Department of State in the consideration of questions arising in the conduct of official relations with foreign governments.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

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JULY, 1903.

No. 274.

TARIFF OF BRITISH GUIANA.

Consul G. H. Moulton sends from Demerara, April 14, 1903, copy of a recent ordinance fixing the tariff on goods imported into the colony for the fiscal year ending March 31, 1904, as follows:

Be it enacted by the governor of British Guiana, with the advice and consent of the combined court thereof, as follows:

1. This ordinance may be cited as the customs duties ordinance, 1903.

2. Subject to the provisions of this ordinance hereinafter contained, there shall be raised, levied, collected, and paid, for the public use of this colony, upon all goods, wares, and merchandise enumerated in the first schedule to this ordinance, which shall be imported into this colony, or taken out of bond for consumption in this colony, the several duties set forth in Column II of the said schedule; and in addition to each of the said duties 5 per cent thereof: *Provided always*, That such addition shall not be made if the reciprocal trade convention between Great Britain and the United States of America with respect to British Guiana comes into operation, and that on the said convention coming into operation there shall be raised, levied, collected, and paid in addition to the said duties a duty at the rate of 16 $\frac{2}{3}$ per cent on each of the several duties set forth in Column II.

3. Subject to the provisions of this ordinance hereinafter contained, there shall be raised, levied, collected, and paid, for the public use of this colony, upon all goods, wares, and merchandise not enumerated in the first schedule to this ordinance, and not hereinafter exempted from payment of duty, which shall be imported into this colony, or taken out of bond for consumption in this colony, an ad valorem duty at the rate of 15 per centum, or \$15 upon every \$100, of the actual cost of such goods, wares, and merchandise, and in addition to such duty 5 per cent thereof: *Provided always*, That such addition shall not be made if the reciprocal trade convention between Great Britain and the United States of America, in respect of British Guiana, comes into operation.

4. Subject to the provisions of this ordinance hereinafter contained, the goods, wares, and merchandise enumerated in the fourth schedule to this ordinance, which

shall be imported into this colony, or taken out of bond for consumption in this colony, shall be exempt from the payment of duty.

5. There shall be raised, levied, collected, and paid for the public use of the colony the several duties set forth in Column I of the first schedule to this ordinance upon all goods, wares, and merchandise, the product of the soil or industry of the United States and of Great Britain and the British possessions, and of such other countries as shall be entitled by convention with Great Britain to the benefit of the most-favored-nation treatment, which shall be imported into this colony or taken out of bond for consumption in this colony, and in addition to the said duties a duty at the rate of $16\frac{2}{3}$ per cent on each of the duties set forth in the said Column I of the first schedule to this ordinance, except the duties on—

Bacon and bacon hams.
Beef admitted by the comptroller of customs as salted or pickled.
Bran, middlings, and shorts.
Bread and biscuits, not sweetened, sugared, or fancy.
Bricks.
Butter.
Candles, tallow.
Cards, playing.
Cheese.
Chocolate and cocoa.
Coal.
Cocoa, raw.
Coffee.
Flour of wheat.
Garlic.
Gelatin.
Ghee.
Hoops, iron.
Isinglass.
Lard and lard compounds.
Lumber, yellow or pitch pine.
Beer, lager.
Meats, ham, bacon, tongues, and canned or preserved meats.
Muskets, rifles, guns, and fowling pieces.
Oats.
Oleomargarine and margarin substances.
Oil meal and cakes.
Paints, mixed for use.
Pickles, including olives and sauces.
Pork, admitted by the comptroller of customs as salted or pickled.
Rice.
Rosin.
Salt, fine.
Shingles.
Shooks.
Slates.
Soap and soap powders, perfumed, fancy, and toilet.
Staves and headings, white oak.
Stearin.
Tallow.
Tobacco in leaf.
Tobacco, manufactured.
Wine, containing not more than 15 per cent of alcohol.

6. There shall be raised, levied, collected, and paid for the public use of the colony upon all goods, wares, and merchandise enumerated in the second schedule to this ordinance, the product of the soil or industry of the United States and of Great Britain and the British possessions, and of such other countries as shall be entitled by convention with Great Britain to the benefit of the most-favored-nation treatment, which shall be imported into this colony or taken out of bond for consumption in this colony, an ad valorem duty of 5 per cent, or \$5 upon every \$100, of the actual cost of such goods, wares, or merchandise.

7. The goods, wares, and merchandise enumerated in the third schedule of this ordinance, the product of the soil or industry of the United States and of Great Britain and the British possessions, and of such other countries as shall be entitled by convention with Great Britain to the benefit of the most-favored-nation treatment, which shall be imported into this colony or taken out of bond for consumption in this colony, shall be exempt from the payment of duty.

8. The provisions made in sections 5, 6, and 7 hereof in favor of such countries as shall be entitled by convention with Great Britain to the benefit of the most-favored-nation treatment shall cease to apply when the said conventional rights shall be terminated, and the provisions of sections 2 and 4 shall thereupon apply to articles imported from such countries.

9. (1) The cost of goods, for the purpose of ascertaining the amount of the ad valorem duty payable thereon, shall be calculated, if the goods have been purchased by the importer or consignor thereof, on the price charged for the said goods by the vender thereof as verified by the genuine invoice of such goods, and, if procured otherwise than by bona fide purchase, calculated on the actual market value or wholesale price of such goods at the time of exportation to this colony in the principal markets of the country whence such goods were imported: *Provided always*, That the comptroller or the proper officer of customs is satisfied in the case of goods alleged to be purchased of the fact of purchase that the entries in such invoice are true, and that the invoice is genuine in every particular, and also in the case of such goods or of goods obtained otherwise than by purchase, that the price charged for the said goods as represented by the invoice aforesaid or by the entry appears to be a fair market value for such goods at the place and at the time that the same were purchased by the importer or consignor thereof.

(2) No discounts or deductions from the value of any goods chargeable with ad valorem duty shall be allowed unless such discount or deduction be clearly shown to the satisfaction of the comptroller or other proper officer on the original invoice, or unless the same be verified by the signature of the manufacturer, merchant, or person from whom the goods set forth or described in the invoice were purchased, and by whom such discount or deduction has been or purports to have been actually allowed.

10. When any invoice for goods purchased in a foreign country expresses the value of such goods in the coinage of that country, such value shall be assessed by the customs authorities in the colony at the constant exchange value (based on the relative values of the precious metals) of such foreign coinage for sterling money, and the importer shall pay duty, when duty is payable at an ad valorem rate, on the amount calculated at such value.

11. If any article subject to the payment of specific duty is imported in any bag, box, tin, jar, bottle, or any other package intended for retail sale and marked or labeled or commonly sold as containing or commonly reputed to contain a specific quantity of such article, such bag, box, tin, jar, bottle, or any other package as aforesaid, shall be deemed, as against the importer, to contain such specific quantity. In all cases where such package is not so marked or labeled or commonly sold or reputed, the duty (if payable on weight) shall be calculated on the gross weight of such package and its contents.

12. (1) Goods not prohibited to be imported into or used in the colony, composed of any article liable to duty as a part or ingredient thereof, shall be chargeable with the full duty payable on such article, or, if composed of more than one article liable to duty, then with the full duty payable on the article charged with the highest rate of duty: *Provided*, That this section shall not apply in the case of any article being a compound of or containing opium, in accordance with the last current British Pharmacopœia, and specially imported for medicinal purposes only.

(2) If any article is enumerated in the tariff, or can be classed under two or more names, headings, or descriptions, and there is a difference of duty, the highest duty provided shall be charged and collected thereon: *Provided*, That the higher duty shall not be exacted in cases where the comptroller of customs is satisfied that the article only contains a very small proportion of the article bearing the higher duty.

13. (1) No liquor containing more than 42 per cent. of proof spirit as verified by Sykes' hydrometer, or as certified by the government analyst, shall be deemed wine, and no liquor containing more than 20 per cent of proof spirit as verified by Sykes' hydrometer or as certified by the government analyst shall be deemed malt liquor. All liquor containing more than 42 per cent of proof spirit verified or certified as aforesaid and all liquor other than wine containing more than 20 per cent of proof spirit verified as aforesaid shall be deemed spirits.

(2) In any case where by reason of the presence of coloring, sweetening, or other matter, the true strength of any liquor can not be immediately ascertained by Sykes' hydrometer, a sample of such liquor may be submitted for analysis, so that the true strength of such liquor may be ascertained, and a certificate signed by the government analyst or any assistant analyst appointed for the purposes of the sale of food and drugs ordinance, 1892, shall be conclusive evidence of such strength, and shall be accepted as such in all courts of justice in this colony.

14. (1) The provisions of the customs ordinance, 1884, which relate to the warehousing of goods shall not be applicable to gunpowder, dynamite, fireworks, or other explosives imported into this colony; and the duty on all such gunpowder, dynamite, fireworks, or other explosives shall be paid immediately on importation: *Provided*, That where such gunpowder, dynamite, fireworks, or other explosives are imported for exportation, or in transit, no duty shall be levied thereon if the regulations relating to the treatment of the said articles are complied with.

(2) If the importer fails to pay such duty immediately, the consignee or agent of the vessel in which the gunpowder, dynamite, fireworks, or other explosives was imported may pay the duty and recover the amount thereof, together with the cost of storage and all other costs properly incurred, from the importer, in any court of competent jurisdiction.

15. For the purpose of encouraging the trade of this colony with other countries, persons exporting goods, wares, and merchandise on which duties have been paid under and by virtue of this or any other ordinance shall be entitled to a drawback of duties on such goods, wares, and merchandise at and after the rates and amounts levied and paid on such goods, wares, and merchandise; and the manner of claiming such drawback shall be subject to the provisions of the customs ordinance, 1884, and any other ordinance that may be hereafter passed by the governor, with the advice and consent of the court of policy, for the regulation of drawbacks: *Provided*, That no such drawbacks shall be allowed on any opium, bang or gange, spirits of any kind, wine, tobacco, whether manufactured or otherwise, cigars, cigarillos, cigarettes, or gunpowder: *Provided also*, That drawbacks shall only be allowed as regards animals in such cases as may have been or may be provided for by regulations from time to time made by the comptroller of customs with the approval of the governor-in-council: *Provided also*, That no drawback shall be

allowed on any goods exported after the expiration of twelve months from the date of the importation thereof, or on any goods which in the opinion of the governor-in-council have been exported with a view to their reimportation: *Provided further*, That on the reimportation of goods previously exported for drawback the importer of such goods shall pay thereon the rate of duty in force at the date of export or at reimportation or at any intermediate time, whichever is highest.

16. It shall be lawful for the comptroller of customs to permit hard bread or crackers, candles, or clothing made in this colony from duty-paid flour, stearin, or materials for clothing to be exported under drawback, subject to such regulations in that behalf as may have been or may be from time to time made by the comptroller of customs, with the approval of the governor-in-council.

17. It shall be lawful for the comptroller of customs to permit hard bread or crackers or clothing to be made in this colony from flour or cotton materials for clothing (as the case may be) entered under bond from countries entitled to the benefits of the convention with the United States of America, and to levy duty on such hard bread or crackers or clothing when so made instead of on the flour or cotton materials for clothing of which they are composed: *Provided*, That the manufacturers of bread or crackers from flour in bond or of clothing from cotton materials for clothing in bond shall enter into a bond with sufficient sureties to the satisfaction of the comptroller of customs for the payment of duty on the flour warehoused or on the bread and crackers manufactured therefrom or in the case of clothing on the materials warehoused or the clothing manufactured therefrom.

18. Persons using duty-paid oil as fuel for the purpose of driving any machinery within the colony shall be entitled to drawback of duties at a rate per gallon equal to the difference between the amount of duty per gallon on such oil and 1 cent on all such oil which has been so consumed as fuel, in connection with any such machinery, subject to such regulations as to security and otherwise in that behalf as may be from time to time made by the comptroller of customs, with the approval of the governor-in-council.

19. Every person who sells to the governor for his own use or contracts with His Majesty's Government for the service of any of His Majesty's regular troops stationed in this colony, or any of His Majesty's ships arriving at this colony, shall be entitled to receive back the amount of duty paid on material or supplies or goods so sold or furnished under such contract for the service of such troops or ships: *Provided*, That due proof is made of the payment of such duties, and that the nature and quantities of the materials or supplies so sold or furnished under such contract are duly certified by the private secretary or the officer commanding such troops or ship, as the case may be.

20. All moneys leviable or payable under and by virtue of this ordinance shall, unless their collection is otherwise specially provided for, be paid to the receiver-general or the assistant receiver-general.

21. In default of payment, when due or demanded, of any of the duties imposed by this or any other ordinance relating to duties of customs, the same with interest at the rate of 6 per cent per annum from the date when the same became due and payable shall, where not otherwise specially provided for, be enforced and recovered by the receiver-general or the assistant receiver-general by separate execution.

22. All duties of customs shall be raised, levied, and collected, subject to the provisions of any ordinance now in force or which may be hereafter passed by the governor, with the advice and consent of the court of policy, for the purpose of regulating the collection of duties of customs.

23. Any proceeding heretofore taken and any penalty, forfeiture, or liability heretofore incurred under the provisions of any ordinance relating to duties of customs

which has ceased to be in operation may be continued, recovered, or enforced as if such ordinance continued in operation; and all bonds taken and all things done under the authority or in pursuance of any ordinance relating to duties of customs which has ceased to be in operation shall be as valid and effectual and may be enforced in the same manner as if such ordinance continued in force.

24. Where any obligation has been entered into for the payment of duties of customs, such obligation shall be deemed to be an obligation to pay all duties of customs which may become legally payable or which are made payable or recoverable under any ordinance relating to duties of customs for the time being in force and to pay the same as the same become payable.

25. The customs duties ordinance, 1902, and the customs duties (amendment) ordinance, 1902, are hereby repealed.

26. (1) This ordinance shall (except sections 5, 6, 7, 8, and 17) come into force on the publication thereof, and shall continue in force until and inclusive of the 31st day of March, 1904, unless otherwise enacted by the combined court.

(2) Sections 5, 6, 7, 8, and 17 shall come into force on such day as the governor shall by proclamation notify, and shall continue in force as long as the reciprocal trade convention hereinbefore mentioned continues in force, and no longer.

SCHEDULE.

FIRST SCHEDULE.

Table of specific duties of customs.

Article.	Rate of duty.	
	Column I.	Column II.
Acid:		
Acetic—		
Containing 66 per cent and upwards of the real acid.....per pound...	\$0.12	\$0.12
Containing less than 66 per cent and more than 10 per cent of the real acid.....per gallon...	.60	.60
Acetic, vinegar, and substitutes for vinegar containing less than 10 per cent of the real acid.....per gallon...	.10	.10
Arrowroot.....per pound...	.01	.01
Bacon and bacon hams*.....do.....	.00½	.02
Bags and sacks.....per 100...	1.25	1.25
Beef,* admitted by the comptroller of customs as salted or pickled, per barrel of 200 pounds.....	.40	2.00
Beer. (See Malt.)		
Biscuits, sweetened, sugared, or fancy.....per pound...	.05	.05
Blue.....do.....	.00½	.00½
Bolts and nuts of iron.....per cwt...	.40	.40
Bran and pollard*.....per pound...	Free.	.00½
Bread and biscuit:*		
Not fancy or in tin.....per 100 pounds...	.15	.50
Not fancy, in tins.....do.....	.75	.75
Bricks.....per 1,000...	1.50	2.00
Brimstone and sulphur.....per pound...	.01	.01
Buckets and pails, of all kinds, not otherwise specified.....per dozen...	.25	.50
Buckets and pails, of wood only*.....do.....		.25
Bulls, cows (with or without calves), heifers, steers, and oxen.....per head...	5.00	5.00
Butter*.....per 100 pounds...	.40	2.00
Calcium carbide:		
In tins or packages, weighing not more than 1 pound.....per pound...	.02	.02
In large packages, when imported with permission of the comptroller of customs.....per pound...	.02	.10

*Under convention.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Candles:		
Adamantine, hydraulic-press composition, spermaceti wax, or any other simple tallow.....per pound...	\$0.05	\$0.05
Tallow *.....do.....	Free.	.01
Cannabis indica, its extracts and its preparations, including bhang, gange, charas, and majoon.....per pound...	6.00	6.00
Cars, motor:		
Not seating more than 4.....	80.00	80.00
For each additional seat above 4.....	20.00	20.00
Cards, playing, per pack of not more than 53 cards in each pack.....	.16	.16
Cartridges:		
Filled.....per 100...	1.50	1.50
Cases capped but not filled.....do.....	.50	.50
Cement.....per barrel of 400 pounds...	.25	.25
Chains, black or galvanized, not to include dog, parrot, or trace chains, per cwt.....	.40	.40
Cheese *.....per 100 pounds...	1.00	2.00
Chloral hydrate.....per pound...	.24	.24
Chloroform.....do.....	.20	.20
Chocolate and cocoa, prepared otherwise than as confectionery.....per pound...	.06	.06
Cigars and cigarettes.....do.....	1.50	1.50
Clapboards.....per 1,000 feet B. M....	5.00	5.00
Coals, including the packages *.....per hogshhead...	.32	.32
Coals, patent fuel, and coke, loose *.....per ton...	.50	.50
Cocoa, raw, and imitations and substitutes thereof.....per pound...	.04½	.04½
Cocconut fiber.....do.....	.01	.01
Coffee and all imitations of and substitutes for it, chicory, dandelion, and taraxacum (raw).....per pound...	.04½	.04½
Collodion.....per gallon...	.60	.60
Confectionery, including jams, jellies, and sweetened preserves not otherwise specified.....per reputed pound or pint...	.06	.06
Cordage, including gasketing.....per 112 pounds...	1.00	1.00
Corks, cut.....per pound...	.10	.10
Corn or maize *.....do.....	Free.	.00¼
Corn brooms *.....per dozen...	Free.	.20
Cornmeal *.....per 100 pounds...	Free.	.25
Cottolene *.....per pound...	.00½	.02
Crushed feed and ground feed.....do.....	.00¼	.00¼
Currants and raisins *.....do.....	(†)	.02
Dogs.....per head...	5.00	5.00
Donkeys.....do.....	1.00	1.00
Dynamite, gunpowder, and fireworks:		
Dynamite and preparations (other than blasting gelatin, gelatin dynamite, and gellignite) containing more than 75 per cent of nitroglycerin, when imported with permission of the governor-in-council.....per pound...	.06	.06
Dynamite and preparations of nitroglycerin certified by the government analyst to contain less than 75 per cent of nitroglycerin, blasting gelatin, gelatin dynamite, or gellignite, gun cotton, and all other explosives admitted by the comptroller of customs as explosives for blasting purposes.....per pound...	.04	.04
Gunpowder and fuses, admitted by the comptroller of customs as explosives for blasting purposes.....per pound...	.01	.01
Gunpowder and all other explosives other than fireworks, not admitted by the comptroller of customs as explosives for blasting purposes, per pound.....	.20	.20
Fireworks which in the opinion of the comptroller of customs are manufactured with a view to produce a pyrotechnic effect.....per pound...	.40	.40

* Under convention.

† See second schedule.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Ether:		
Acetic and butyric.....per pound..	\$0.12	\$0.12
Sulphuric.....per gallon.....	.65	.65
Ethyl (chloride, bromide, and iodide of).....per pound..	1.20	1.20
Fireworks. (See Dynamite.)		
Fish, tinned or canned *.....do.....	(†)	.02
Fish:		
Dried.....per 112 pounds.....	.50	.50
Pickled—		
Mackerel.....per barrel of 200 pounds.....	1.00	1.00
Salmon.....do.....	2.00	2.00
All other sorts (including trout) not otherwise specified.....do.....	.50	.50
Smoked.....per pound.....	.00½	.00½
Preserved, in jars or bottles *.....do.....	.01	.02
Flour of wheat *.....per barrel of 106 pounds.....	.60	1.00
Fruits and vegetables, dried, canned, or preserved, other than currants and raisins *.....per pound.....	(†)	.02
Garlic.....do.....	.00¾	.00¾
Gelatin.....do.....	.07½	.07½
Ghee.....per 100 pounds.....	.40	2.00
Ginger, raw.....per pound.....	.01	.01
Goats, with or without kids.....per head.....	.25	.25
Grain, of every description not otherwise specified, and every kind of beans, pease, and pulse of every description and every kind and whether whole or split.....per pound.....	.00¾	.00¾
Grease, antifriction, axle grease, and similar compounds.....do.....	.01	.01
Gunpowder. (See Dynamite.)		
Gums.....do.....	.00½	.00½
Hair.....do.....	.05	.05
Hams *.....do.....	.00½	.02
Hay and chaff *.....per 100 pounds.....	Free.	.10
Horses, stallions: *		
Under 14½ hands in height.....per head.....	Free.	100.00
All others.....do.....	Free.	50.00
Hogs and pigs of every description.....do.....	2.00	2.00
Honey.....per pound.....	.06	.06
Hoops:		
Iron or steel.....per 112 pounds.....	.15	.15
Wooden *.....per 1,000.....	(†)	1.50
Isinglass.....per pound.....	.07½	.07½
Iron or steel:		
Galvanized, in bars, rods, sheets, or corrugated.....per cwt.....	.50	.50
Black, in bars, rods, sheets, or plates other than boiler plates.....do.....	.40	.40
Wire, black, not otherwise specified.....do.....	.30	.30
Lard and lard compounds containing not more than 2 per cent of water, * per pound.....	.00½	.01
Lard and lard compounds containing more than 2 per cent of water, per pound.....	.04	.04
Lime:		
Building *—		
Per hogshead.....	Free.	.25
Per tierce.....	Free.	.18
Per barrel.....	Free.	.02
Per bag.....	Free.	.02
Hydraulic.....per barrel.....	Free.	.20
Temper *.....per puncheon.....	Free.	.50

* Under convention.

† See second schedule.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Lumber (not including spars), yellow or pitch pine: *		
Dressed or undressed †.....per 1,000 feet B. M....	\$1.00	
Dressed on one or both sides, or grooved and tongued, or grooved or tongued.....per 1,000 feet B. M....		\$5.00
Lumber † (not including spars):		
Yellow or pitch pine, undressed.....do.....		3.00
Other than yellow or pitch pine—		
Dressed on one or both sides, or grooved and tongued, or grooved or tongued.....per 1,000 feet B. M....	5.00	5.00
Undressed.....do.....	3.00	3.00
Malt liquor, the original gravity of which is less than 1.062, viz:		
Beer* (lager only)—		
Per gallon.....	.08	(\$)
Per dozen reputed quarts ‡.....	.20	
Per dozen reputed pints ‡.....	.10	
Beer (lager only)—		
Per dozen imperial quarts ‡.....	.30	
Per dozen imperial pints ‡.....	.15	
Malt liquor: *		
Other kinds and cider and perry—		
In wood.....per gallon.....	.12	.16
In bottles ‡.....per dozen imperial quarts....	.45	.60
In reputed quarts measuring up to 27 ounces ‡.....	.30	.40
Per dozen imperial pints ‡.....	.22½	.30
Other kinds, in bottles, per dozen reputed pints measuring up to 13½ ounces, or smaller sizes.....	.15	.20
(Duty to be paid on that one of the above-mentioned sizes to which the bottles most nearly approximate.)		
Matches:		
In boxes containing not more than 100 matches each...per gross of boxes....	.75	.75
(Matches in boxes containing any greater quantity than 100 matches each to be charged in proportion.)		
Other than in boxes.....per 14,400....	.90	1.00
Vestas.....do.....	.75	.75
Match splints, in cases containing each equal to 10 gross of matches of the ordinary length.....per case.....	3.75	3.75
Meats* (ham, bacon, tongues, canned or preserved).....per 100 pounds....	.50	2.00
Medicinal preparations of the last current British Pharmacopœia (official) containing spirits not otherwise provided for, which the comptroller of customs is satisfied are to be used in the compounding of medicines only, per liquid gallon.....	.60	.60
Medicinal preparations, not official, and patent or proprietary medicines containing spirits (not otherwise provided for):		
If containing less than 25 per cent of proof spirit.....per liquid gallon....	.70	.70
If containing 25 per cent, but less than 50 per cent, of proof spirit.....do.....	1.40	1.40
If containing 50 per cent or more of proof spirit to pay duty as spirits.		
Milk, preserved, malted, and sterilized, and compounds thereof...per pound...	.01	.01
Mules* .....per head.....	Free.	10.00
Muskets, rifles, guns, and fowling pieces.....each.....	3.00	(1)
Muzzle-loading guns.....do.....	1.00	1.00

* Under convention.

† Spruce and white pine lumber not grooved, tongued, or dressed, to be subject to a reduction of 5 per cent for splints.

‡ Subject to a maximum allowance of 5 per cent for breakage.

§ To pay rates for malt liquor, "other kinds."

! Ad valorem duty.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Nails and spikes, iron and galvanized iron.....per pound...	\$0.00½	\$0.00¼
Nuts, used, in the opinion of the comptroller of customs, as fruit.....do.....	.00½	.00½
Oatmeal.....do.....	.00½	.00½
Oats *.....do.....	.00½	.00½
Oleomargarine and margarin substances:*		
Per 100 pounds.....	.20	.....
Per pound.....	.....	.02
Onions †.....do.....	.00½	.00½
Opium, including powdered opium for medicinal purposes.....do.....	6.00	6.00
Opium, extract of.....do.....	12.00	12.00
Opium, or Cannabis indica, official tincture of.....per gallon...	.70	.80
Oils:		
Other than gasoline, benzine, and crude petroleum, when admitted with the sanction of the comptroller of customs, which give off an inflammable vapor at a temperature of less than 85° F. when tested in the Abel-Pensky apparatus, in the manner laid down in the schedule to the proclamation of the 7th day of November, 1901, under the petroleum ordinance, 1872.....per gallon...	3.00	3.00
Crude petroleum, including such by-products as jodolite (when admitted with the sanction of the comptroller of customs).....per gallon...	.01	.01
All other, including castor oil, benzine, and gasoline, when admitted with the sanction of the comptroller of customs (essential, medicinal, and perfumed oils excepted).....per gallon...	.25	.25
Oil meal and cakes *.....per 100 pounds...	.12½	.12½
Paints, mixed for use *.....per cwt.....	.37½	.75
Paints and colors ground in oils or any other liquid *.....do.....	.30	.60
Paints:		
Pigments, dried, other than ochers *.....do.....	.20	.40
Ochers, dried, and distempers *.....do.....	.10	.20
Lakes, vermilion, and fine colors to pay ad valorem.		
Percussion caps.....per 100.....	.04	.04
Pickles, including olives and sauces.....per reputed quart...	.06	.06
Pistols, including revolvers.....each.....	5.00	5.00
Pitch *.....per barrel...	Free.	.50
Pork, * admitted by the comptroller of customs as salted or pickled, per barrel of 200 pounds.....	.40	2.00
Rice.....per 100 pounds...	.35	.35
Rosin *.....per barrel...	Free.	.50
Sago.....per pound...	.01	.01
Salt, admitted by the comptroller of customs as fine.....per 200 pounds...	1.50	1.50
Salt, coarse, in bulk.....do.....	.75	.75
Salt-peter.....per pound...	.01	.01
Sarsaparilla.....per gallon...	.75	.75
Sheep.....per head...	1.00	1.00
Shingles, wooden, of all kinds.....per 1,000.....	.50	.50
Shooks, * per pack or packs containing shoos for one puncheon, or two hogsheads, or three barrels.....per pack or packs...	.12	.40
Shot.....per pound...	.02	.02
Slates (roofing), flagstones, and tiles *.....per 1,000.....	1.50	3.00
Snuff.....per pound...	1.50	1.50
Soap and soap powders, perfumed, fancy, and toilet soap, including medicinal and medicated soaps:		
Costing 6 cents and over per pound.....per pound...	.06	.06
Costing less than 6 cents and not less than 4 cents per pound.....do.....	.02	.02

* Under convention.

† Subject to an allowance of 12½ per cent for deterioration on voyage in lieu of any allowance or survey.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Soap, all other kinds.....per pound...	\$0.00½	\$0.00½
Seed, coriander, cumin, aniseed, mustard, mustard seed, menthie or mattie seed, adjwine or iowine, mangrall, peepur, murra, kulungun, hurray, black and other pepper, ground or unground, turmeric, carraway, celery, capsicums, and myrabolums.....per pound...	.02	.02
Spices, and all seeds, not otherwise specified, except garden seeds (free), per pound.....	.04	.04
Spirits and strong waters:		
For every gallon computed as of the strength given on Sykes' hydrometer as of the proof strength of spirits of every description (except perfumed spirits), including naphtha or methylic alcohol purified so as to be potable, and mixtures and preparations containing spirits, per gallon.....	3.50	3.50
Perfumed—		
Not over proof (being in the opinion of the comptroller of customs not potable), computed as above.....per liquid gallon...	2.00	2.00
Over proof (being in the opinion of the comptroller of customs not potable), computed as above.....per liquid gallon...	4.00	4.00
Where a person importing sweetened spirits, liqueurs, bitters, and cordials or other preparations containing spirits in bottle has entered the same in such a manner as to indicate that the strength is not to be tested.....per gallon...	4.50	4.50
Provided, always, that no spirits be allowed to be imported into the colony of a lower strength than 25 under proof, except such as may be passed by the comptroller of customs as liqueurs.		
Spirits tested for strength and for obscuration shall be tested without prepayment of any fee; but where the government analyst certifies that the strength of the spirit could not be ascertained by the hydrometer without testing for obscuration, the importer shall pay the government analyst's fee for testing.		
Spirits, naphtha, or methyl alcohol not purified so as to be potable, per gallon.....	.25	.25
Spirits, methylated, certified by the government analyst to contain not less than 10 per cent of wood naphtha and three-fourths of 1 per cent of Dippe's oil or of mineral naphtha.....per gallon...	.50	.50
Sparklets containing carbonic acid.....per dozen...	.08	.08
Starch of all kinds, including corn starch and all farinaceous foods, not otherwise enumerated.....per pound...	.01	.01
Staves and headings,* white oak.....per 1,000...	3.00	8.00
Staves of every other description *.....do.....	2.00	6.00
Stearin *.....per pound...	Free.	.01
Sugar:†		
White (refined).....do.....	.03	.03
Other kinds.....do.....	.01	.01
Tallow *.....do.....	Free.	.01
Taploca .....do.....	.01	.01

* Under convention.

† Provided that after the coming into operation of the Brussels convention the duty on sugar shall be as follows:

Description.	Column I.	Column II.
Sugar:		
White (refined).....per 100 pounds...	\$0.45	\$0.45
Other kinds.....do.....	.40	.40

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Tar*.....per barrel...	Free.	\$0.50
Tea.....per pound...	\$0.16	.16
Tobacco:†		
In leaf—		
If in packages containing not less than 800 pounds—		
Containing 10 pounds or more of moisture in every 100 pounds weight thereof.....per pound...	.50	.50
Containing less than 10 pounds of moisture in every 100 pounds weight thereof.....per pound...	.60	.60
If in packages containing less than 800 pounds—		
Containing 10 pounds or more of moisture in every 100 pounds weight thereof.....per pound...	.60	.60
Containing less than 10 pounds of moisture in every 100 pounds weight thereof.....per pound...	.80	.80
Manufactured (cigars, cigarettes, and snuff excepted).....do.....	1.00	1.00
Tobacco pipes, clay ‡.....per gross...	1.00	1.00
Turpentine:		
Crude.....per barrel...	.50	.50
Spirits of.....per gallon...	.18	.18
Twine.....per pound...	.02	.02
Varnish and polish:		
Not containing spirits.....per gallon...	.09	.09
Containing any quantity of methylated spirits.....do.....	.50	.50
Varnish containing any quantity of spirits of any other kind to pay duty as medicinal preparations not official.		
The article known as international composition or Rahtjen's composition, and any other article which, in the opinion of the comptroller of customs, is of a similar kind, to be regarded as varnish and polish containing spirits.		
Waters, aerated or mineral: §		
Per dozen bottles.....	.16	.16
Per dozen splits.....	.08	.08
Wax:		
Beeswax.....per pound...	.06	.06
Paraffin and mineral.....do.....	.02	.02
Whiting or chalk (not including precipitated chalk or chalk in cubes or crayons), except when imported for manure.....per cwt...	.10	.20
Wine, containing not more than 15 per centum in weight of absolute alcohol and not more than 75 cents per gallon in value*.....per gallon...	.40	.....
Wine, the declared value of which, including the cost of packing, bottling, and casing, is any sum not exceeding \$2 a gallon, and containing less than 26 per cent of proof spirit as verified by Sykes' hydrometer:		
In bulk.....per gallon...		.55
In bottles—		
Per dozen imperial quarts.....		1.80
Per dozen reputed quarts, measuring up to 27 ounces.....		1.20
Per dozen imperial pints.....		.90
Per dozen reputed pints, measuring up to 13½ ounces, or smaller sizes.....		.60
Duty to be paid on that one of the above-mentioned sizes to which the bottle most nearly approximates.		

* Under convention.

† Duty on tobacco to be paid on the weight being certified, either by a sworn weigher and gauger or otherwise, to the satisfaction of the comptroller of customs.

‡ Subject to a maximum allowance of 20 per cent for breakage.

§ Subject to a maximum allowance of 5 per cent for breakage.

FIRST SCHEDULE—continued.

Table of specific duties of customs—Continued.

Article.	Rate of duty.	
	Column I.	Column II.
Wine of all other descriptions:		
In bulk.....per gallon...	\$1.00	\$1.00
In bottles—		
Per dozen imperial quarts.....		4.50
Per dozen reputed quarts, measuring up to 27 ounces.....	3.00	3.00
Per dozen imperial pints.....		2.25
Per dozen reputed pints, measuring up to 13½ ounces, or smaller sizes	1.50	1.50
Duty to be paid on that one of the above-mentioned sizes to which the bottle most nearly approximates.		
Yeast cakes and compressed yeast.....per pound...	.06	.06

And at these rates upon any greater or less quantity of such goods, wares, and merchandise, respectively.

Where in any case in this schedule reference is made to any article as packed in a particular way, or imported in a particular form, the same duty shall be imposed on such article if packed in any other way or in any other form imported unless there is some special provision in the schedule for such mode of package or such form; and the amount of duty payable in any such case shall be computed by the comptroller so as to equal as nearly as may be, but be not less than, the amount of duty payable in the like case if the article had been packed in the usual way or imported in the usual form.

SECOND SCHEDULE.*

Fruits and vegetables, dried, canned, or preserved.
 Fish, tinned or canned.
 Ready-made clothing and wearing apparel made of cotton.
 Earthen and glass ware.
 Hardware (metallic) and cutlery.
 Furniture and upholstery.
 Wooden and willow ware for domestic purposes.
 Wooden hoops.

THIRD SCHEDULE.

Table of exemptions from duty.

Animals, live, to include only cattle which are proved to the satisfaction of the comptroller of customs to be imported for breeding purposes, mongooses or ichneumons, and poultry.

Animal charcoal

Articles imported for the use of the pilot service of the colony.

Articles passed by the customs authorities as the personal baggage of passengers arriving in the colony from abroad.

Articles passed by the comptroller of customs, subject to the sanction of the governor, as imported for the official use of the consulate of any foreign country or place: *Provided*, That a similar privilege in respect of similar articles is accorded

* Under convention.

by the laws and customs of such foreign country or place to His Majesty's consulate therein.

Bran and pollard.*

Broken stones and road metal of every description.

Bullion and coin.

Candles and tallow.*

Carts and vehicles.*

Chemicals and other substances which the comptroller of customs is satisfied are imported for the purification of water.

Clocks.*

Corn brooms.*

Corn or maize.*

Cornmeal.*

Cotton seeds.

Cotton-seed oil.*

Cycles and parts.*

Eggs.*

Fire engines.

Fresh fish and turtle.

Fruits, vegetables, and ground provisions not preserved and not enumerated in the table of specific duties of customs.

Goods, stores, arms, and ammunition imported by order of the governor of the colony.

Hay and chaff.*

Horses.*

Horses, baggage, and furniture of officers of His Majesty's naval and military service.

Ice.

Lamps.*

Lime of all kinds.

Machinery, comprising the following:

Brick and tile making machinery.

Iron cane punts, iron bridges, and grating bars.

Locks or sluices for sea defenses or water supply.

Locomotive engines and railway plant.

Launches of all kinds.

Trucks for mining purposes.

Machinery and wire for electric lighting and railway and power plant, motors and their parts, controllers and their parts, rheostats and rails and their appendages for electric street lighting.

Machinery and implements intended for waterworks, tanks and lamp-posts and their appurtenances, paving and curb stones, and draining pipes and such other machinery, ironwork, or goods as may be approved by the governor-in-council, imported by the mayor and town council of Georgetown or of New Amsterdam exclusively for their own use.

Machinery imported for the drainage of land or for use in mining operations, or in the manufacture or preparation of the produce of raw materials or in the manufacture or preparation of manures, whether imported for sale or on private account.

Machinery for sawmills, foundries, and factories of whatever kind.

Machinery for steamboats and barges and plates, angles, and other materials and appliances for the construction of steamboats and barges.

* Under convention.

Machinery, comprising the following—Continued.

Machinery, retorts, gasometers, and pipes imported for the construction of gas works in the colony.

Machinery for the reaping and preparation for the market of rice.

Pans, teaches, tanks, and other vessels imported for use exclusively in the manufacture of sugar or for the storage or supply of water.

Steam boilers of every description and steam-boiler plates and tubes and plows; steam diggers and steam dredgers; mowing machines, when the comptroller of customs is satisfied that such are imported for agricultural purposes.

Machinery and implements for mining, for agriculture, for the manufacture of sugar, and for electric lighting.*

Manure, sulphate of ammonia, nitrate of soda, and other substances which the comptroller of customs is satisfied are imported for use as manure or as remedies for diseases of or preventives of insect attacks on plants.

Materials and church furniture specially imported for any place of worship of the Christian religion in the colony.

Mechanics' tools in use.

Mules.*

Packages or coverings inclosing articles of merchandise.*

Patterns and samples, subject to any regulations in that behalf made by the governor-in-council.

Photographs and engravings, unframed.

Pipes to be exclusively used for the sinking of artesian wells.

Pitch.*

Postage stamps.

Printed books not subject to duty under ordinance No. 3 of 1851, and manuscript.

Printing presses and types, and printing accessories, printing paper, and printing ink imported by or directly for the conductor of any newspaper or printing establishment for the exclusive purpose of being used by him in the course of his trade.

Provisions and stores of every description imported by His Majesty's Government for the use of His Majesty's naval or military forces.

Rosin.*

Sewing machines.

Show cards and advertising matter passed as such by the comptroller of customs.

Specimens illustrative of natural history; garden seeds, bulbs, and roots; trees, plants, vines, and seeds and grains of all kinds for propagation or cultivation.

Tallow.*

Tar.*

Telegraph instruments and other materials imported by telegraph companies and necessary for the construction and use of their works, offices, and stations in the colony.

Uniforms, arms, ammunition, accouterments, and prizes imported by and for the use of His Majesty's naval or military forces, or the colonial militia, or any volunteer force or rifle association sanctioned by the governor.

Wines, spirituous liquors, and stores imported by and for the use of the governor.

Wire fencing.*

All steam and other vessels, locomotives, carriages, rolling stock, rails, and such other material and appliances not herein already exempted as the governor-in-council considers necessary for the construction and maintenance of a railway

* Under convention.

between the Demerara River and Essequibo River in terms of the contract dated the 11th December, 1893, made between the Sproston Dock and Foundry Company and the government of this colony.

All stores landed from an immigrant vessel for the purpose of feeding the immigrants conveyed thereby in terms of contract of conveyance, and subsequently certified by the immigration agent-general to have been so used.

All materials for use in railways or other special works which, in the opinion of the governor-in-council, may be useful in the development of the resources of the colony.

FOURTH SCHEDULE.

Table of exemptions from duty.

Animals, live, to include only cattle which are proved to the satisfaction of the comptroller of customs to be imported for breeding purposes, mongooses or ichneumons, and poultry.

Animal charcoal.

Articles passed by the customs authorities as the personal baggage of passengers arriving in the colony from abroad.

Articles passed by the comptroller of customs, subject to the sanction of the governor, as imported for the official use of the consulate of any foreign country or place: *Provided*, That a similar privilege in respect of similar articles is accorded by the laws and customs of such foreign country or place to His Majesty's consulate therein.

Bullion and coin.

Chemicals and other substances which the comptroller of customs is satisfied are imported for the purification of water.

Cotton seeds.

Fire engines and hose and couplings for the same.

Fruits, vegetables, and ground provisions not preserved and not enumerated in the table of specific duties of customs.

Goods, stores, arms, and ammunition imported by order of the governor of the colony.

Horses, baggage, and furniture of officers on imperial service in His Majesty's naval and military forces.

Ice.

Machinery, comprising the following:

Brick and tile making machinery.

Iron cane punts, iron bridges, and grating bars.

Locks and sluices for sea defenses or water supply.

Locomotive engines and railway plant.

Launches of all kinds.

Trucks for mining purposes.

Machinery and wire for electric lighting and railway and power plants, motors and their parts, controllers and their parts, rheostats and rails and their appendages for electric street lighting and locomotion. Also implements for electric lighting imported by the mayor and town council of Georgetown or of New Amsterdam for lighting any street or place belonging to them or subject to their control.

Machinery and implements intended for waterworks, tanks, and lamp-posts, with their appurtenances, paving and curb stones, and draining pipes, and such other machinery, ironwork, or goods as may be approved by the governor-in-council imported by the mayor and town council of Georgetown or of New Amsterdam exclusively for their own use.

Machinery, comprising the following—Continued.

Machinery imported for the drainage of land or for use in mining operations, or in the manufacture or preparation of the produce of raw materials, or in the manufacture or preparation of manures.

Machinery for sawmills, foundries, and factories of whatever kind.

Machinery for steam boats and barges, and plates, angles, and other materials and appliances for the construction of steam boats and barges.

Machinery, retorts, gasometers, and pipes imported for the construction of gas works in the colony.

Machinery for the reaping and preparation for the market of rice.

Pans, teachés, tanks, and other vessels imported for use exclusively in the manufacture of sugar for the storage or supply of water.

Steam boilers of every description and steam-boiler plates and tubes, and plows, steam diggers, and steam dredgers. Mowing machines, when the comptroller of customs is satisfied that such are imported for agricultural purposes.

Manures, sulphate of ammonia, nitrate of soda, lime, and other substances which the comptroller of customs is satisfied are imported for use as manure or as remedies for diseases of or preventives of insect attacks on plants.

Maps (wall) and copy books imported for educational purposes.

Mechanics' tools in use.

Packages in which goods are imported, including carboys, except trunks and canisters, and except hogsheads and puncheons not containing coals, lime, wines, or spirits.

Patterns and samples, subject to any regulations in that behalf made by the governor-in-council.

Photographs, unframed.

Pipes to be exclusively used for the sinking of artesian wells.

Plans.

Postage stamps.

Printed books not subject to duty under ordinance No. 3 of 1851, and manuscript.

Printing presses and types, printing paper and printing ink, imported by or directly for the conductor of any newspaper or printing establishment for the exclusive purpose of being used by him in the course of his trade.

Provisions and stores of every description imported by His Majesty's Government for the use of His Majesty's naval and military forces.

Sewing machines.

Show cards and advertisements passed as such by the comptroller of customs.

Specimens illustrative of natural history.

Seeds, garden; bulbs and roots, trees, plants, vines and seeds, and grains of all kinds for propagation or cultivation.

Telegraph instruments and other materials imported by telegraph companies and necessary for the construction and use of their works, offices, and stations in the colony.

Uniforms, arms, ammunition, accouterments, and prizes imported by or for the use of His Majesty's naval or military forces, or the colonial militia, or the police force, or any volunteer force or rifle association sanctioned by the governor.

Vaccine lymph, mallein, and tuberculine.

Wines, spirituous liquors, and stores, imported by or for the use of the governor.

All steam and other vessels, locomotives, carriages, rolling stock, rails, and such other material and appliances not herein already exempted as the governor-in-council considers necessary for the construction and maintenance of a railway

between the Demerara River and Essequibo River in terms of the contract dated the 11th December, 1893, made between the Sproston Dock and Foundry Company and the government of this colony.

All stores landed from an immigrant vessel for the purpose of feeding the immigrants conveyed thereby in terms of contract of conveyance, and subsequently certified by the immigration agent-general to have been so used.

All materials for use in railways or other special works which in the opinion of the governor-in-council may be useful in the development of the resources of the colony.

IMPORT DUTIES IN COLOMBIA.

The Department has received from Consul-General H. A. Gudger, of Panama, and Consul Oscar Malmros, of Colon, translations of a recent decree, which provides:

ARTICLE 1. The reduction of commercial imports, of which decree of January 5, 1903, treats, will continue in effect until the 1st of June next. From the aforesaid date, the rate of duty on merchandise destined for sale or use in this Department will be 25 per cent in Colombian silver* on the value in gold.

ART. 2. Liquors will pay in accordance with the following tariff:

For each liter (1.0567 quarts) of common whisky and its compounds up to 21° Cartier, such as rum, brandy, gin, whisky, aniseed brandy, refined rossolis, orange, etc., 1.50 pesos (54.1 cents).

For each liter of liquor from 22° to 42°, as chartreuse, cream of cocoa, peppermint, fater kerman, kummel, etc., 2 pesos (72.2 cents).

For each liter of alcohol up to 42°, 1 peso (36.1 cents).

For each liter of alcohol more than 42°, 1.50 pesos (54.1 cents).

Pure alcohol which is introduced in small quantities by the pharmacies in order to use it for medicinal purposes will pay in conformity with paragraph of article No. 1.

For each liter of condensed liquid which serves for the preparation of strong drinks, 15 pesos (\$5.42).

For each liter of bitters, such as angostura bitters, fernet branca, coca, etc., 60 centavos (21.6 cents).

ART. 3. The wines will pay thus:

For each liter of wine known as white, red, or Bordeaux, and the like, 10 centavos (3.6 cents).

For each liter of wine known by the names of sweet, dry, Malaga, Jerez, port, vermuth, etc., 20 centavos (7.2 cents).

For each liter of champagne of any mark, 2 pesos (72.2 cents).

For each liter of sparkling wine, as Margarita, moscato, moselle, etc., 1 peso (36.1 cents).

For each liter of beer of any class, 20 centavos (7.2 cents).

ART. 4. Mineral or gaseous waters, soda, lemonade, kola, appolinaris, and any other similar drinks will pay in conformity with article 1 of this decree.

* 1 peso=36.1 cents on January 1, 1903.

THE TRANS-ANDINE RAILWAY.

During the last session of the Chilean Congress, which closed in February, a bill was passed providing for the construction of a railway over the Andes Mountains, to connect Buenos Ayres with Santiago and Valparaiso. This will be the first line to cross the continent of South America.

This railway was projected twenty years ago, and since that time some sort of measure dealing with the question has been before each session of Congress; but each in its turn failed to pass one or the other branch of the law-making body until on February 28 last, when the above-mentioned bill became a law.

A railway extending from Buenos Ayres to the Cumbre of the Cordillera, at Uspallata Pass, to connect with the line from Valparaiso, is being constructed by the Argentine Government. Work on the new road is being pushed forward on both sides of the mountains, and prospects are bright for direct railway connections, within a few years, between the Atlantic and Pacific coasts, over the Andes, by a line extending through the heart of Chile and Argentina. This road will shorten the time between Europe and Chile by six or eight days, as traffic is now via the Straits of Magellan.

The railway from Buenos Ayres is completed as far as Puente del Inca, a short distance from the Cumbre, and the line in course of construction in Chile is completed as far as Salto del Saldado, also near the pass over the Andes, and during the summer months—November to April—traffic is carried on over the mountains, along the route of the proposed railway, by mule caravans. It requires only one day to make the trip between the railway terminals. The pass is crossed at an elevation of 13,000 feet above sea level; but the route as surveyed for the railway provides for a tunnel through the mountains, which will reduce the altitude of the highest point reached by the railroad to considerably below that of the Cumbre, where the mule transports cross.

SYNOPSIS OF THE TRANS-ANDINE RAILWAY BILL.

The following is a synopsis of the Trans-Andine Railway bill, recently passed by the Chilean Congress and promulgated by the President of the Republic:

Article I.

The President of the Republic is empowered to contract, by public tender, for the construction of a railway of 1-meter (1.09 yards) gauge from the city of Los Andes to the summit of the Cordillera, there to join a railway of the same gauge in course of construction from Mendoza to the summit of the Cordillera.

Article II.

The State guarantees for the term of twenty years 5 per cent interest on a sum not to exceed £1,500,000 (\$7,299,750). For the payment of the guaranty the line will be divided into three sections, the value of each of which will be considered as follows:

Section 1.—From Los Andes to Juncal, 20 per cent of the total value of the line.

Section 2.—From Juncal to Portillo, 35 per cent of the total value.

Section 3.—From Portillo to the junction with the Argentine line, 45 per cent.

The guaranty will commence from the time each section is finished and is provided with the necessary rolling stock.

Article III.

It belongs to the President of the Republic to appoint the term for receiving tenders, the time in which the different sections are to be constructed, and the time and manner of the payment of the guaranty; to adopt the measures necessary for the fulfillment of the object of the act; to intervene in the formation of tariffs and plans and in choice of quality and class of rolling-stock; and generally to determine all the other conditions to guarantee the continuance and the safety of traffic in all seasons.

If traffic should be interrupted for more than forty days, the railway will pay a fine of £150 (\$730) a day for each day exceeding that term.

The plans will include the works of defense against snow and slips necessary for the maintenance of traffic during all the winter.

Tenders must be accompanied with a certificate of deposit of \$200,000 (\$73,000) to the order of the Chilean Government as a guaranty of good faith.

The tenderer whose offer may be accepted will be required to make a deposit of \$400,000 (\$146,000) in bonds of the "Caja Hipotecaria" or of the Chilean Government, valued at the current market price in that institution, as sole guaranty for the fulfillment of the contract, and he will be entitled to receive the interest falling due on the said bonds.

This deposit will be returned to the contractor in the following form: Fifty per cent on the termination of the first section from Los Andes to Juncal, 25 per cent on the termination of the second section from Juncal to Portillo, and the remaining 25 per cent on the conclusion of the third section.

Article IV.

All land and ground necessary for the line, stations, offices, workshops, and other requirements of a railway are declared of public utility and their expropriation must be effected according to law. The effects of this declaration will remain in force during the construction of the line.

The section of the Trans-Andine Railway already constructed from Los Andes to Salto del Soldado is also declared of public utility in the event of the owners and the new concessionnaire not being able to come to terms.

In the event of expropriation taking place, the purchaser will have to pay not only the value of the section constructed, but also that of the existing materials and machinery, surveys, and works executed and land acquired for the continuation of the railway.

The concessionnaire may exact the expropriation referred to in the two preceding sections during the term of one year, to be counted from the date of the acceptance of his tender.

To the contractors charged with the construction of the railway there will be conceded the use of public lands they may require for the railway, stations, and

offices, and also that of public roads, so long as this use does not interfere with traffic.

There is also granted to them the gratuitous use of the water belonging to the State on the section from Juncal to the summit, as motive power for the exclusive purpose of imparting motion to their installations and machinery, and without prejudice to rights previously acquired.

Article V.

Locomotives, cars, tools, and other materials necessary for the construction of the line, stations, offices, and the rolling stock necessary for the service of the line will be exempt from import duty and from all Government taxes.

The sum upon which exemption from duty will be granted will be fixed by the President of the Republic after the approval of the estimates of the line; and to him there must be rendered proof that these materials have been used on the line, its annexes and dependencies.

Article VI.

The line, in addition to the obligations imposed on it by articles 53, 54, and 55 of the law of August 6, 1862, will be under the obligation to carry at half rates all public employees in commission and all freight belonging to the Government.

If the line should obtain from the Argentine lines or from lines uniting with these any concessions in the conveyance of correspondence, freight, or passengers, these concessions shall be extended to the same persons and objects transported by the Trans-Andine Railway.

Article VII.

The questions or differences that may arise between the Government and the line with respect to the manner of fulfillment of their respective obligations shall be referred to two arbitrators, one to be named by each party, these to have power to appoint a third, the whole to form a tribunal from which there will be no appeal.

If the arbitrators should not be able to agree in the choice of a third, the latter will be named by the president of the supreme court.

Article VIII.

The concessionnaire and the persons or companies who may represent his rights, although they may be foreigners and may not reside in Chile, will be considered as domiciled in Chile, and will be subject to the laws of this country just as if they were Chileans, in everything relating to the fulfillment of the contract to be entered into by virtue of this law, it being understood that the concessionnaire or they who may acquire his rights may not invoke diplomatic protection in any difficulty which may be produced from the same cause.

Article IX.

Once the railway is finished, the concessionnaire is obliged to sell it to the State, in case the latter may so will it, within the term of five years, for a sum which may not exceed the capital whose interest is guaranteed, with 10 per cent additional.

In any case, the concessionnaire will be obliged to respect the conventions celebrated by the Chilean Government with the Argentine Republic relating to the exploitation and the traffic of the line.

Article X.

The powers conferred upon the President of the Republic by this law will remain in force for two years from February 28, 1903.

R. E. MANSFIELD,
Consul.

VALPARAISO, *March 1, 1903.*

MINERAL AND AGRICULTURAL RESOURCES OF PERU.

The Department has received from Minister Dudley, of Lima, under date of April 6, 1903, copies of a pamphlet published by authority of the Peruvian Government, containing information for the use of prospective investors and settlers in Peru. The following extracts are taken from the pamphlet:

MINES.

Foreigners can become, according to the law, owners of real estate in Peru, subject to the same duties, benefits, and rights as the natives. The code of mines, promulgated July 6, 1900, grants to all persons the right to obtain mining property and to be members of the boards of representatives. The number of concessions demanded should not exceed 60. The greatest industrial development of Peru lies in its gold, copper, and silver mines, its deposits of petroleum, and its mineral-water sources. The mines belong to powerful European and North American syndicates, which are engaged in vigorous prosecution of the works, so that a great output is expected for 1904 and the following years. A tax of 15 soles (\$7.30) must be paid every six months for each concession.

The following figures show the concessions made to different persons and societies, without distinction as to nationality:

	Number.
1899.....	1, 107
1900.....	1, 663
1901.....	1, 014
1902 (first 6 months).....	532

COAL AND OIL.

The northern part of the Peruvian coast contains an abundance of coal, petroleum, and naphtha. Coal is found in 23 provinces, and the coal beds being in many places in close proximity to the sea, facilities for its exportation are offered. The principal sources of petroleum are found in the Department of Piura, where the production of each well may be estimated at 136 to 140 hectoliters (3,590 to 3,696 gallons) per day. The petroleum contains very little paraffin. The heavy oils are valuable, being similar to those of Russia. The crude oil can be employed as fuel without other preparation than exposure to the atmosphere in open ponds for a few days. The chemical composition, compared with that of Russia and the United States, is:

Composition.	Russia.	United States.*	Peru.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Carbon.....	87.4	49.8	84.9
Hydrogen.....	15.2	6.3	13.7
Oxygen.....	.1	44.6	1.4

*The United States Geological Survey gives the average composition of Pennsylvania oil as follows: Carbon, 84.9 per cent; hydrogen, 13.7 per cent; oxygen, 1.4 per cent.

GUANO.

One of the most important industrial factors of the country is guano. There are at present more than 40 natural deposits of guano in the small archipelagoes and islands along the Peruvian coast, besides other deposits, covered by a coat of earth and sand, that have never been exploited. One ton of guano can produce 3 tons of artificial manure. There are also deposits of salt, borax, gypsum, and alabaster. Sulphur, considered superior to that of Sicily, is abundant.

COTTON.

Almost every product of torrid and of temperate climates grows in the agricultural region of the coast, but it is especially favorable to the production of cotton. This is appreciated for its adaptability to be woven with wool. In 1898 the production of cotton amounted to 6,712,112 kilograms (14,797,522 pounds). The increase since then has been about 40 per cent. The five factories making cotton textiles can not keep pace with the demand.

SUGAR, ETC.

The culture of sugar cane is another valuable and prominent industry, the product constituting the leading article of export. There are at present more than 370,650 acres applied to the cultivation of sugar cane. In Cuba 16 tons of cane yield 1 ton of sugar; in Peru it requires only 12.5. The cultivation of both rice and tobacco could be easily extended, as the conditions of temperature and atmosphere, with the extreme fertility of the soil, are favorable to these cultures. A most important field for foreign capital in Peru is the digging of artesian wells. The property rights in all land irrigated by this system (granted by law to the irrigators) secure to the capital invested such a profit as no other industry can return. A very moderate capital invested in the manufacture of straw goods and hammocks would be profitable. The manufacture of white straw hats (known in foreign markets as panama hats) has attained a considerable degree of perfection. They are the work of Indian natives of the northern provinces, who have received no industrial education. Recently a request has been presented to the Government for the concession of a certain part of the seashore, for the formation of oyster beds and the establishment of the pearl industry. All the essential conditions, such as tranquillity of the sea, depth of waters, proper temperature, etc., are to be found on the northwestern coast of Peru. The Intercontinental Railroad will soon traverse the country, while new lines of steamers will increase the facilities of communication with the Atlantic ports.

EXHIBITION OF ALCOHOL APPLIANCES AT LIMA.

The Exposition of Alcohol Appliances for Industrial Purposes was opened by the President of Peru on February 28, and continued during the month of March. The object of the exposition was to create a new demand for alcohol, so that the greater consumption of this article, when applied to industrial purposes, would form a new source of revenue to the owners of sugar-cane estates, in view of the decrease in value of cane sugar.

The various appliances were arranged in the exhibition palace. The first hall was occupied by a German exhibit, contributed by

the firm of Heckmann & Waldispühl, established in Lima. Their exhibit consisted of the following machinery:

- (a) A $2\frac{1}{2}$ -horsepower vertical motor, system Dürr, Berlin.
- (b) A 6-horsepower vertical motor, system Swiderski, Leipzig.
- (c) Six motors from the Gasmotoren Fabrick, Dresden, of Moritz-Hille, placed in the order of power developed—*i. e.*, $1\frac{3}{4}$, $3\frac{3}{4}$, 5, 7, 8, and $9\frac{1}{4}$ horsepower.
- (d) A 6-horsepower motor from Gebrüder Korting, Kortingsdorf bei Hanover.

The $9\frac{1}{4}$ -horsepower motor was belted to a shaft 50 feet long, from which power was transmitted to several carpenters' machines, water pumps, and a printing press.

The Swiderski factory also sent a 20-horsepower transportable motor, for use in driving agricultural machines. Here it was exhibited for working cotton gins. The belting used on all this machinery was supplied by the firm of Jokamann Biertz, of Rhenish Prussia, which also had a tasteful exhibit.

In the gardens behind the palace was a narrow-gauge railway about 6,000 feet in length, over which ran a train of several cars hauled by a locomotive of the Deutz system, which, though only of 4 horsepower, can pull 25 tons on the level at any speed up to 5 miles an hour. It is intended for use in cane fields, mines, etc., where light portable railways are used.

Another notable exhibit of Messrs. Heckmann & Waldispühl consisted of brilliant alcohol lamps.

In another hall were the exhibits of the firm of Ludowieg & Co. Here were shown two motors of 8 to 12 horsepower and of 15 to 20 horsepower, respectively, made by the Motorfahrzeug und Motorenfabrick, Marienfelde Cein, Berlin. Each of these motors had a large water-cooling tank, carrying sufficient water for ten hours' work, which specially adapts them to agricultural work in places where water is difficult to obtain.

There were several stoves for heating rooms, made by C. F. Kindermann & Co., of Berlin, and also a number of smaller articles, such as spirit stoves, cigar lighters, etc., from the factory of Hermann Weissenburger & Co., of Cannstadt.

In the left wing of the palace was the exhibit of Siemens & Halske, who had on view a Deutz motor of the system Otto, of 6 nominal horsepower, which can be raised to 12 horsepower. The motor has a governor by which the consumption of alcohol is automatically regulated, in proportion to the power developed and the number of revolutions required. It drives two dynamos, one of which lighted several arc lamps and the other gave power to an electric motor operating a rock-drilling machine.

Close by was an exhibit of a 5-horsepower kerosene motor of English manufacture; also another of $2\frac{1}{2}$ horsepower, a Webster, of American manufacture. These were driving small cane mills and carpenters' machines.

The Technical Society for Industrial Appliances of Alcohol, established in Paris, exhibited a powerful locomobile and two automobiles; also a bicycle and a tricycle operated by small motors placed in the framework.

To the right of the entrance was an exhibition of powerful lamps (some of 1,000, 1,500, and 2,000 candlepower), lighted by alcohol, which formed part of the exhibit of a committee of French manufacturers, who also contributed a simple and easily transported bakery heated by a small consumption of alcohol, as well as two small motors—one of 5 and the other of 7 horsepower—which were driving small machines employed in the process of bread making.

This exposition has been of great importance to Peru and will lead to the introduction on an extensive scale of alcohol and kerosene motors, and there is no reason why American makers should not secure a large portion of this business.

The exposition has shown that, notwithstanding the excellence of the alcohol motors exhibited, these can not attempt to compete with those in which petroleum is used as combustible, because petroleum can be procured here at very low cost.

JOSEPH C. CREE,
Vice-Consul.

CALLAO, *April 14, 1903.*

COFFEE MARKET IN BRAZIL.

The acute crisis through which Brazil is now passing, owing to overproduction and consequent low prices of coffee, has caused a great deal of discussion in all classes of the population, and the agitation has taken definite shape in a bill which has passed the lower branch of the Sao Paulo State legislature, providing:

ARTICLE I. The executive is authorized—

1. To levy a tax from July 1 next of not over 20 per cent in kind on all coffee exported, or ad valorem on the lower grades, which shall be appraised on the basis of the pauta, or official valuation, in addition to existing duties.

2. To punish with fines, equivalent to ten times the value of the goods, all admixture made with intention to elude the stipulations of this law.

3. To grant subsidies up to 200,000 milreis* to shipping companies willing to reduce freights on coffee between Santos and other nonproducing Brazilian States.

*The average market value of the milreis is at present 20 cents.

4. To create official types of coffee, with the object of regulating the execution of this law and insuring taxation of higher types being less than that of lower.

5. To provide for the roasting of coffee for purposes of propaganda in those States of the Union where roasted coffee is admitted free of interstate duty.

6. To promote the creation of commercial and industrial establishments for sale of Sao Paulo coffee abroad, granting favors to the same.

7. To finance the trade in roasted and ground coffee, in order to prevent admixture or falsification.

ART. 2. The executive is hereby authorized to expend up to 10,000,000 milreis in aid to planters and to undertake the necessary credit operations entailed thereby.

ART. 3. In case the Banco de Credito Agricola be not organized within the period determined by the law of December, 1902, the product of the transit tax shall be applied to the service of the loan or payment of differences of exchange and the subsidy mentioned in Article III.

ART. 4. Aid to planters shall take the form of loans on first mortgage, on agricultural mortgage (*penhor agricola*) with collateral guaranty, on collateral securities alone, and be realized through the agency of banks or agricultural syndicates approved and financed by the Government.

ART. 5. No loan to any planter can exceed 50,000 milreis, on which interest at a rate not exceeding 8 per cent per annum shall be paid.

ART. 6. Loans on mortgage are not to exceed three years, with payment of interest annually and amortizations in three installments of 20, 30, and 50 per cent of the loan. Loans on the other specified classes of security shall be for one year only, renewable for one year more on amortization of at least 50 per cent.

ART. 7. The executive is authorized to treat with the Union Government to promote the meeting of an international congress of coffee planters in this city, to determine the best manner to defend the interests of producers and consumers of this article.

ART. 8. The executive is also authorized to come to an agreement with the governments of other producing States of the Union, for the protection of this product and execution of the stipulations of this law.

ART. 9. All provisions to the contrary are hereby revoked.

Of course, any plan of this kind would prove abortive unless the other coffee-producing States—Minas, Rio, and Espirito Santo—decreed like measures; but, owing to interstate jealousies and diverse economical conditions, it is not at all likely that the various interests will be so reconciled as to bring about united effort. Sao Paulo is by far the largest producing State, having yielded in the crop year 1901-2 (the largest ever known) about two-thirds of the total crop. But it is generally believed here that no Government measures can prove permanently effectual, and that any expedients will only serve to temporarily ameliorate the condition of the planters. It is pointed out that this country will pay the entire cost of these projects, and the foreign markets, with their existing enormous stocks, will, in all probability, reap as great benefit as Brazil. The one real remedy, it is said, is to let the crisis take care of itself, and then prices will go low enough to force out some of the plantations, and thus give consumption a chance to catch up with supply. From entries of

coffee (Rio and Santos) up to date, the year's crop up to June 30 would appear to be not far from 12,000,000 bags, which is too much for requirements, and the following crop, from July 1, 1903, to June 30, 1904, promises a yield fully equal to the present one.

RIO DE JANEIRO, *March 20, 1903.*

L. C. IRVINE,
Vice-Consul-General.

ADVICE TO EXPORTERS AND EMIGRANTS TO BRAZIL.

This consulate receives a great many inquiries from United States manufacturers and business men for the names of firms here handling special lines of goods, and always does its best to supply information. The firms whose names are given are probably inundated with circulars, catalogues, and letters, which promptly find their way to the waste basket.

Firms here are very conservative, and once a particular mark or brand is known and found to be suitable and reliable it is very hard to displace it. Business men will not send orders to people whom they do not know; it is only natural that merchants in Brazil should be as suspicious of merchants in the United States as the American merchants are of them. The only way to cultivate trade in South America is by personal effort and contact. Our exporters will have to send out competent men and locate representatives in the principal markets. Trade here must be built up on the same lines as in the United States—by patient, unremitting effort and honest, just dealing. The language of Brazil is Portuguese, but salesmen speaking Spanish can easily get along. To accomplish much, however, agents must understand one or the other of these tongues.

Just now Brazil is passing through a season of severe financial depression, but the resources of the country are such that matters must mend some day, and there is no good reason why the United States should not secure a fair share of the vast trade which will then be done.

Inquiries also come from people who purpose settling in Brazil as farmers. It can not be too distinctly understood that such a course will entail disappointment and, very likely, disaster on all who make the attempt.

It should be remembered that local conditions of climate, language, and custom present great difficulties for those who have been brought up in other surroundings, and it is not likely that American farmers could readily adapt themselves to the change.

Many letters come desiring information as to persons who are supposed to have died, leaving almost fabulous fortunes which the Brazilian Government is holding, pending the appearance of the heirs. Brazil is not a custodian for any such fortunes.

L. C. IRVINE,

RIO DE JANEIRO, April 3, 1903.

Vice-Consul-General.

COMMERCE OF URUGUAY FOR 1902.

I give below trade statistics for the year 1902:

Imports.

Drinks in general.....	\$1,990,367
Comestibles, cereals, and spices.....	5,048,319
Tobacco and cigars.....	208,909
Soft goods and materials.....	4,511,764
Ready-made clothing.....	1,055,256
Raw material and machinery.....	7,346,662
Various	2,554,393
Live stock.....	801,677
Total.....	23,517,347

Exports.

Live stock.....	611,945
Slaughterhouse products.....	29,737,992
Agricultural products.....	2,458,827
Other products.....	603,972
Various articles.....	37,614
Provisions for vessels.....	152,162
Total.....	33,602,512

It may be of interest to review the commerce of the Republic for the last thirteen years:

Year.	Imports.	Exports.	Year.	Imports.	Exports.
1890.....	\$36,364,627	\$29,085,519	1897.....	\$19,512,216	\$29,319,753
1891.....	18,978,420	26,998,270	1898.....	24,784,360	30,276,916
1892.....	18,404,296	25,951,819	1899.....	25,652,788	36,574,164
1893.....	19,671,610	27,681,373	1900.....	23,978,206	29,410,862
1894.....	23,800,370	33,479,511	1901.....	23,691,032	27,731,126
1895.....	25,386,106	32,543,644	1902.....	23,517,347	36,302,512
1896.....	25,530,185	30,403,084			

It should be remembered that the figures for imports are custom valuations and average at least 30 per cent above real value; the same is true, though not to such an extent, of the exports.

ALBERT W. SWALM,

MONTEVIDEO, March 23, 1903.

Consul.

AGRICULTURAL PRODUCTS OF NICARAGUA.

I give below a brief description of the principal agricultural crops of Nicaragua for the year 1902:

CACAO.

The crop was about an average one (which is less than is used for home consumption), but as usual was of excellent quality, bringing a higher price in the markets here than any of the imported chocolates. Although the far-famed plantation of Menier—situated near Granada, Nicaragua—is supposed to furnish that well-known chocolate manufacturer with his superior quality of raw materials, it is understood that all his crop is sold right here in the country for at least 20 centavos (about 4 cents gold) per pound more than he has to pay for the same article imported from South America. The price of Nicaraguan cacao (raw in the bean) in the markets of this country to-day is 1.60 pesos (about 25 cents gold) per pound.

It would be impossible to make an accurate estimate of the quantity of chocolate used every year in this country, as none is exported, a small quantity is imported, and there are no statistics of the amount grown here; but it is an article used in every well-to-do household in the country at least twice a day, in hot chocolate drinks and cold "frescos" (chocolate ground with parched corn and shaken up with cold water and sugar), so that one might make a rough estimate that about 500,000 pounds are consumed.

Cacao planting is one of the most attractive and lucrative industries in the Tropics, but, owing to the delicate nature of the tree and the great care necessary to preserve it, few of the natives wish to trouble themselves with it, but prefer corn and plantains, which are much easier to cultivate. Nearly all the cacao plantations are owned by foreigners, and, although the tree grows more luxuriantly on the Atlantic coast and along the river valleys on that side, it also grows in all altitudes from the sea level to 2,000 feet. One cacao tree, not over 6 years old, on top of Catarina Hill (1,700 feet above sea level), to my personal knowledge has already produced three crops of over 4 pounds each; thus it is easy to calculate what an acre of such trees would produce annually. According to custom, these trees are planted 4 yards apart, in rows 3 yards apart, or about 400 trees to the acre. Calculating an output of 4 pounds each, or 1,600 pounds of fruit, this at 25 cents per pound would give an annual return of \$400 per acre, which nets the planter at least \$350. The trees thrive best in a moist soil and, like coffee, must be shaded.

Thus, when clearing land for cacao, all the largest trees of the forest are left for shade, while only the underbrush is cut and burned. The clearing costs about \$6 gold per manzana (1.72 acres) and has to be repeated at least twice every year. The picking and preparing for market is much more easily performed than with coffee, as it grows in large pods containing from 15 to 25 beans each, on trees from 10 to 12 feet high.

COFFEE.

The present crop is not only very small, but will probably be less than 100,000 centals (10,000,000 pounds)—about half the average yield; and although for several years past coffee planting has not been profitable in this country, and many of the principal planters have been forced into bankruptcy, there seems to be no decrease in the acreage devoted to this industry and everyone expects better times.

The market value of coffee to-day in this city is from 40 to 60 pesos paper currency, or about \$7 to \$10 gold, per cental (100 pounds). The crop in the Departments of Jinotega and Matagalpa—where the finest grades are produced, owing to the salubrious climate and the rich, moist soil—has, for the first time in many years, been a sad disappointment to the energetic planters (mostly Americans) who have settled there.

CORN.

The two crops of corn which are usually harvested here each year—one in August, the other in December—have also fallen far below the average, but owing to the lack of statistics it is impossible to give a close estimate of the number of fanegas produced. A "fanega" is 24 "medios" of 12 pounds each of corn, or 288 pounds—not a bushel, as is often supposed. However, the crop is about sufficient for home consumption. The prices are very high for this country, where the cost of production is so small. No fertilizers, phosphates, or even ashes are ever used, but the crops generally yield from 25 to 50 bushels per acre twice each year. Prices range from 60 centavos (10 cents) to 90 centavos (15 cents) per medio (12 pounds), instead of the average of 30 centavos (5 cents) per medio. This has caused much hardship among the poor, for whom corn is the "staff of life." The corn grown in Nicaragua is of an excellent quality.

COTTON.

The cultivation of cotton in Nicaragua is still in its infancy, and, owing to the lack of experience, this year's crop has been almost a failure, and nearly every plantation in the Department of Chinandega—which is apparently best adapted for cotton, as it grows there wild and luxuriantly—has been destroyed by insects.

RICE.

Although the rice crop has been unusually good, there has not been enough for home consumption. Next to corn, it is a staple diet among laborers. The yield may be estimated at 10,000 sacks. The rice is all of the side-hill and high-elevation variety, growing best about 2,000 feet above sea level. It sells for at least 2 pesos (about 35 cents) more per cental (100 pounds) than the imported article—25 pesos, or about \$4 in United States gold.

SUGAR.

Sugar cane grows luxuriantly in all parts of Nicaragua, from the low plains of Chinandega and the lake region to an elevation of about 4,000 feet above sea level.

The largest plantation in Nicaragua is the San Antonio, at Chichigalpa, on a low, level plain sloping to the Pacific. Its average annual production is 70,000 centals (7,000,000 pounds), but it will be a little below that this year, owing to the drought of last season. The San Rafael, near Granada, produces about 1,000,000 pounds annually, and El Polvon, near Chichigalpa, 7,000 centals (700,000 pounds). There are hundreds of small establishments operated in connection with other enterprises, especially with coffee. Altogether, it is estimated that about 100,000 centals (10,000,000 pounds) was manufactured during the year 1902. This, however, represents only about one-half the production of sugar cane in the country, the other half being used in the production of aguardiente, or rum, which during the year amounted to over 1,400,000 liters (369,845 gallons), nearly all of which is consumed locally. It is the country's largest source of internal revenue, excepting coffee, the tax amounting to over 1,000,000 pesos (\$350,000) during the year.

TOBACCO.

Tobacco is produced on a small scale in nearly all parts of Nicaragua, especially in Masaya, Chontales, and on the volcanic island of Ometepe. Like aguardiente, it is a Government monopoly and yields an annual revenue of about \$40,000 gold.

OTHER PRODUCTS.

Other agricultural products of the country are potatoes (which grow well at an elevation of about 2,000 feet above sea level), pine-apples, beans, sweet potatoes, yams, eggplant, cabbage, lettuce, oranges, lemons, limes, mangoes, jokote, mamone, anona, grenadilla, and dozens of native fruits for which there is no name in English.

CHESTER DONALDSON,

MANAGUA, *March 31, 1903.*

Consul.

PROPOSED RAILWAY IN BRITISH HONDURAS.

The following editorial from the Colonial Guardian of recent date shows the present status and future prospects of any railway scheme in this colony. The contract which I reported* has been recently withdrawn because of its nonacceptance by any promoters and because it was not practical.

My experience of five years in this country and many days of traveling in the "bush" prompts me to suggest that a narrow-gauge railway built without any subsidy or grant of land other than a right of way will be a paying investment, and, receiving nothing from the local government it will be freed from annoying conditions. The editorial reads:

The withdrawal by the Secretary of State of the draft contract for the construction of the proposed railway does not, it is to be hoped, mean that all idea of the construction of a railway from Belize to the fertile lands southwestward of this town to the frontier has been abandoned, for there is no good reason why a cheap, light railway might not be constructed with the view of getting at the practically unlimited supply of mahogany to be found between Indian Creek and the frontier on the one hand and to the eastward of Indian Creek on the other. It is true that, because the Starkey survey party blundered into an inaccessible region, the Secretary of State had decided that the only practicable railway route to the frontier was between the Belize and Sibun rivers, but Mr. Chamberlain has at last realized his mistake in insisting upon that route—a route that would pass through a country to a great extent denuded of mahogany—to the frontier.

Such being the case, the time is propitious to reconsider the advisability of constructing a light railway in the direction of the Regan survey line. That line was thoroughly surveyed for a railway for about 45 miles from Belize, and the route beyond this was explored for about 15 miles more southwestward. This line passed through a country containing vast numbers of mahogany trees of immense size, and the land was otherwise so desirable that, when the notes taken by Mr. Dobbins, the chief engineer of that survey, were placed before them, the American Construction Company of New York decided to undertake the construction of a railway along that route for a land grant only. That their proposal was not readily accepted has been the greatest injury that a government has ever inflicted on British Honduras.

Now that the price of mahogany is going up, due to American competitors having entered the field, the construction of a cheap railway to the region where mahogany abounds is worthy of consideration. The difficulty in inducing capitalists to construct a railway through an unpopulated country has been the uncertainty of its paying interest on the money invested; because, in the absence of sufficient natural productions to maintain a railway, it is obvious that the railway proprietors would be out of pocket while waiting for cultivators slowly to settle on the lands bordering such railway. But where it can be shown that there is mahogany enough to maintain a railway for many years—allowing ample time for agricultural settlements to spring up on either side of such road—this difficulty ought to

*ADVANCE SHEETS No. 861 (October 16, 1900).

vanish. It was this consideration that induced the American Construction Company to agree, for a land grant alone, to construct such a railway; and the reason that induced them to arrive at this decision is even more potent to-day than it was then, for mahogany cutting is paying better than it did twenty years ago.

In view of these facts, may it not be to the interest of the American firms now purchasing and cutting mahogany here to undertake the construction of such railway for a land grant while paying only a nominal royalty on wood cut by them on Crown land? We think the subject is worthy of consideration.

Should no private individual undertake to construct the railway, the Imperial Government might undertake it, appropriating the proceeds of the sale of all the Crown lands of the colony toward repayment. We think that British Honduras is as much entitled to consideration as any of the sugar islands of the British West Indies which have recently received bounties from the Imperial Government.

All propositions for a charter should be offered direct to the Secretary of State for the Colonies, because, with no cable communication from Belize and a weekly mail only, the delay in all transactions between the colony and London is most annoying and often defeats the end sought. The earnings of the Honduras Railway, in that Republic, are chiefly secured in hauling bananas from the adjacent plantations to Puerto Cortes, and as the output of fruit from this colony at the present writing is much below the demand, further production along a line of railway would be encouraged and the freights would give the road quite as much revenue as in the Republic. Then, too, as noted in the editorial, the great industry of this colony, viz, the exporting of mahogany and cedar, has changed most radically in conditions since 1900. Previous to that time, little if any of these woods was shipped to the United States; but this year, if there are sufficient floods, there will be fully 8,000,000 feet forwarded to Boston and to Louisville, via Pensacola. The American firms represented here stand ready to purchase every foot the colony can produce. If there were a railway in operation through the wooded districts, the cutters would not have to depend on uncertain floods, but would ship more quickly and surely, and, what is quite as important, more steadily. This source of direct revenue, and the resulting mixed freights, would prevent any properly managed line from failing to earn dividends, though perhaps small at first. Having had several years' connection with a railway in our northwest, and knowing the results of economical and skillful management (and that a subsidy and a land grant are not always necessary to financial success), I hope that United States capital may be induced to come to this colony and develop its rich resources.

W. L. AVERY,
Consul.

BELIZE, *April 21, 1903.*
No 274—03—3

NEW RAILROAD IN VERACRUZ.

Mr. Andrew MacKenzie has secured from the Mexican Government a concession for constructing and operating a railroad in the State of Veracruz for a term of ninety-nine years. The road will start from Los Xuchiles and terminate at Juan de la Punta, both in the county of Cordoba.

Mr. MacKenzie is also authorized to construct and operate a branch to the line running from Tierra Blanca to Veracruz. Three miles of the road are to be constructed within one and one-half years; the balance, the succeeding year. The motive power may be steam or any other power approved by the Government. The principal offices of the road are to be located at Mexico City, and all construction material is to have free entry for the term of three years. No discriminating freight charges are to be made in favor of goods of foreign manufacture. Three thousand dollars in bonds of the consolidated public debt are to be deposited as a guaranty for the terms of this contract.

Los Xuchiles is on the main line from Cordoba, and San Juan de la Punta is about 15 miles due east from Los Xuchiles, on the gulf slope of the mountain range. If the short line mentioned in this concession should be prolonged, an extensive and fertile territory will be included within the network of railroads in the southern part of this State.

W. W. CANADA,
Consul.

VERACRUZ, *May 9, 1903.*

LAUNCH SERVICE IN COSTA RICA.

A contract was signed on November 19, 1902, by the Minister of Fomento and John B. Swann and C. J. Hamilton, American citizens, by the terms of which the concessionnaires agreed to place within three months a steam launch of not less than 40 tons burden on the Pacific coast of Costa Rica, to engage in coasting trade between the port of Punta Arenas and points on the coast outside the Gulf of Nicoya; and to make at least two trips a month between Punta Arenas and the Golfo Dulce on the Colombian border, touching at an intermediate point to be selected by the Government.

The launch is to be exempt from all port dues, and the concessionnaires are to pay no taxes for the privilege of engaging in this traffic, but goods brought from any foreign country are subject to

the customs duties prescribed by law. The contract is to be in force for three years.

Messrs. Swann and Hamilton have brought from San Francisco a gasoline launch 50 feet in length, 15-foot beam, and of 40 tons burden, and the vessel is now in service carrying freight, passengers, and mails. The concessionnaires receive 200 colons (\$93) a month for carrying the mails.

JOHN C. CALDWELL,

SAN JOSÉ, *April 20, 1903.*

Consul.

AMERICAN VS. EUROPEAN MANUFACTURES IN CUBA.

The Department has received from the United States legation at Habana, under date of April 22, 1903, the following data showing trade opportunities in the Cuban market in the lines of machinery, boots and shoes, and manufactured cottons:

MACHINERY, FITTINGS, STRUCTURAL STEEL, ETC.

The American products in this line suit the Cuban trade and are superior in quality to those which come from Europe. The existing American prices, with the exception of those for machinery, are now about 50 per cent in advance of European prices. The quality and efficiency of American machinery, however, overcomes any difference in price between it and European machinery. Although the haul is much longer from Europe than from New York, the freight rates to Habana are generally lower from Europe than from New York. As a rule, the freight rates from New Orleans and Mobile are the same as from New York, depriving Cuba of the advantage of its close proximity to the manufacturing centers of the Southern States. Under normal conditions, deliveries can be made quicker from the United States than from Europe, but during the past year it has been almost impossible to get goods with any promptness from the United States, and this has occasioned a loss to our trade. Breakage on American goods, due to careless packing, is another drawback. Generally speaking, the European goods can be bought on six months' time, while it is unusual for the American merchant to sell for anything except cash against shipping documents. American merchants might find it of advantage to allow sixty days; but the extension of credits, owing to the difficulties of collection, should be a matter of careful inquiry. It has been suggested that our manufacturers should select reputable and sound firms in the larger Cuban cities as their representatives, quote them their lowest prices, give them sixty days' time, with 2 per cent cash

discount, and send an expert twice a year to Cuba to instruct and cooperate in handling the business.

BOOTS AND SHOES.

Cuba offers an excellent field for the American shoe manufacturer. At present Spain almost wholly controls this market. It will be necessary for our manufacturers to take into consideration the following facts in connection with this market if they wish to secure it. The Cuban foot is small, with high instep, hollow on the shank and slightly curved, owing probably to the use of the old French last. Shoes for the Cuban trade must have an extra-high instep—i. e., a D shoe should be E on the instep, though Spaniards and colored people usually wear the regular measures. Women's sizes run from 1 to 9 in half sizes, and sizes above 6 are few and mainly for the colored trade. The widths are D and E, with a small percentage of C. The demand is for light weight and light-colored shoes, tans and russets, preferably straw color. Women prefer narrow-toe last and tip. The latter should be straight or pointed; heels light, curved, and not very wide. Wood-covered heels sell well, because of lightness. Shoes should have oak inner sole, and care should be taken to prevent stainage of hosiery, which is often white or of light color. Soles should not be extended, but trimmed close to the upper. Misses, children, and often youths wear the same style of shoes, viz, high cut, lace or button, McKay preferred, square edge, light-weight or medium sole, narrow or medium toe, all with straight or pointed tip, high instep, spring heel, D and E widths, sizes running from 2 to 7 and 11½ to 7. Men and boys wear mainly bals, with some buttons. Oxfords are not much in demand. Sizes run from 1 to 4½ for boys and 5 to 10 for men, sizes 6 to 8 prevailing; all half sizes. Lasts should be made hollow on the shank and flat on the sole, taking a little higher heel than the average American shoe. Widths D and E; very few C. Medium and narrow toes, straight tips, medium and light soles, square edges favored. It is preferred here that bals and oxfords should close on being laced. Stiff counters should be avoided. Every care should be taken to make a cool shoe, and for this reason as little glue as possible should be used. Finish counts for more than the wear in this market. Cheap and medium grades are good sellers.

Packing, invoicing, etc.

All shoes should be packed in single cartons, on one end of which is pasted a small label giving the stock number, size, and width of their contents. Each assorted dozen single-pair cartons of women's, misses', and children's shoes should be packed together, or wrapped in manila paper with proper label at the end of the carton. Men's

and boys' shoes should be packed in individual cartons. Cartons should be as small as possible, on account of freight charges; but cases should be large, for the same reason, and should contain at least 10 dozen men's, 15 dozen boys', 30 or 40 dozen women's, and from 40 to 100 dozen misses' and children's shoes, and should also be made to measure so as not to waste space. Freight charges are 10 cents per cubic foot from New York. Cases should be wire strapped and the customer's instructions with regard to marking and numbering carefully followed. Triplicate invoices and bills of expenses are necessary, all made out in indelible ink. Carbon copies are not allowed. Invoices should show mark and number of cases, gross weight and contents, and the number of pairs, with detailed sizes and prices. All discounts should be deducted from the total of invoices. Each invoice must be certified in the handwriting of a properly authorized person, preferably a member of the firm. In the margin opposite each item should be stated the proper stock number, to facilitate separation or unpacking. Bills of expenses should read, "This covers all expenses," and must be signed, like the invoices, by a member of the firm. Bills of expenses and bills of lading should be sent by the steamer carrying the goods. Invoices may be sent ahead or with the goods. They must be exact and carefully prepared; any discrepancy between the invoice and shipment makes the goods liable to seizure. The present duties are: Men's shoes, 5 to 15 cents per pair; women's and misses', 10 cents and upwards; children's, 5 cents to 9½ cents. In addition all pay 10 per cent ad valorem. Manufacturers, it is said, should sell through but one jobber to this trade. Care should be taken to fill orders as promptly as possible and small orders should not be neglected. The total shoe trade amounts to about \$2,000,000.

PRINT CLOTHS.

A finished print cloth, known in the United States as a 7½ to 8 yards to the pound when finished, is being imported into this market and invoiced at a price per yard which amounts to 64 cents a kilogram (2.2 pounds). This cloth is woven and printed in or near Manchester, England, and is the cheapest and most slightly cloth of its kind that comes to this market; consequently, it furnishes the strongest competition to be overcome. The invoice price of this cloth is 14½d. (3½ cents) per yard. This cloth is woven two in a width and printed and split after being finished, measuring, when ready for shipment, 24 to 25 inches. It varies in weight and is sometimes invoiced at 14½d. (3½ cents) per yard; but at this lower price it is reduced in weight, making the price per kilogram (2.2 pounds) the same as the cloth invoiced at 14½d. A cloth similar to the English, made in Spain and sold in competition, is invoiced at from 1 to 1.15

reales($3\frac{1}{4}$ to 4 cents) per meter (1.09 yards). This cloth is woven and made ready for shipment very much like the print cloth made in the United States, being woven 26 to 27 inches wide with the selvages. The average kilogram (2.2 pounds) price for this cloth is about 70 cents—about 10 per cent higher than the English cloth on the kilogram price.

The American finished print cloth in competition with that of Great Britain and Spain is a cloth measuring 24 to 25 inches when finished and is invoiced at $3\frac{1}{4}$ to 4 cents per yard, the kilogram price not varying more than 5 per cent from that of the British cloth—64 cents per kilogram. The colorings and finish of the American cloth are generally better than either the Spanish or the English. It will be seen by comparison of the cloths made and shipped from these three markets that the American manufacturer at present is furnishing the same amount of material, and at the same price, as the British manufacturer, and at from 9 to 10 per cent cheaper than the goods manufactured in Spain.

PIECE-DYED AND PRINTED DRILLS.

A piece-dyed cloth 27 to 28 inches wide, made in Manchester, an imitation of khaki and a very important item in drills for this market, is being invoiced in Manchester at from $5\frac{1}{2}$ d. to $6\frac{1}{2}$ d. (11 to 13 cents) per yard. A cloth made in the United States of equally fine construction and coloring is being invoiced at $11\frac{1}{2}$ cents. These cloths pay under paragraph 116, Letter D, of the present tariff. The average price, approximately, of printed drills in the United States and Great Britain is from 50 to 55 cents per kilogram (2.2 pounds). These pay, under paragraph 116, Letter C, at 32 cents per kilogram, plus a surtax of 30 per cent.

Cotton ducks made in Barcelona are invoiced for this market at from 52 to 55 cents in United States currency per kilogram. The same ducks billed from the United States average 52 cents per kilogram. These pay, under paragraph 114, Letters B and C, at 17 and 23 cents, respectively, per kilogram, without surtax, the average price being 20 cents.

KNITTED STUFFS, HOSIERY, UNDERWEAR, ETC.

The comparison with Spain is made because the bulk of this merchandise is at present imported from that country. An invoice of hosiery made in the United States, in sizes from $6\frac{1}{2}$ to 9 and at prices from 65 to 90 cents per dozen and from \$1.10 to \$1.50 per kilogram (2.2 pounds), does not vary in prices per dozen and in prices per kilogram from similar goods from Spain more than 5 per cent. These goods are classified under paragraph 122 of the tariff and pay from 70 to 90 cents per kilogram—an average of 80 cents per kilogram.

AGRICULTURAL LANDS IN CUBA.

In reply to an inquiry relative to the advisability of investments in agricultural lands in Cuba,* Consul R. E. Holaday, of Santiago de Cuba, under date of April 15, 1903, writes:

Considerable quantities of land have already been bought by citizens of the United States and by companies organized and capitalized in the United States. Persons desiring to buy land should either make a personal investigation or be represented by some competent person, as there is much undesirable and unproductive land on the market. The soil of Cuba is adapted to the production of coffee, sugar, cacao, tobacco, corn, potatoes, vegetables, and tropical fruits of all varieties, but there are large areas that are nonarable. Coffee and cacao are raised principally in the mountainous regions. The cacao is cultivated in connection with the coffee plant, as the latter requires shade, which is furnished by the former, at the same time yielding a profitable crop. Cacao can also be profitably grown in the lower and richer districts. The rich river valleys and plains are devoted to the cultivation of sugar cane. There are large areas of land suitable for grazing, and the raising of cattle will unquestionably become one of the profitable industries in the near future. It must not be understood that all of the land in Cuba suitable for cultivation is being cultivated. There is much virgin land which the future development of the means of transportation will some day make very valuable. There are also many abandoned estates, which were destroyed during the wars in Cuba, the owners of which are either too impoverished to again establish and operate them or they do not desire again to undertake planting. There is no direct land tax. The owners of real property are taxed upon the income which the property yields. Public roads are well defined, but in bad condition. In the interior of the island they are mere trails and travel is almost wholly by horseback. The construction of the new trunk-line railroad, lately completed, extending from San Luis, in this province, to Santa Clara, in the province of Santa Clara, thus establishing direct railroad communication—by connection with other lines—between this city and Habana, will be an important factor in the future development of large sections of the island which have heretofore been utilized only to a limited extent, on account of the lack of adequate and sufficiently rapid means of transporting the

*The original letter has been sent the inquirer.

produce of the soil to the local markets and to the seaports for exportation. The climate is tropical and salubrious. No contagious or endemic diseases exist. With the observance of the ordinary rules of hygiene one should enjoy as good health here as he would under the same conditions in a temperate climate.

TRADE OF CIENFUEGOS.

I submit the following table of customs statistics (furnished me by the collector of customs at Cienfuegos), which indicate the proportion of American products entering this port during 1902, compared with the importations from other countries. The principal articles coming from the United States were flour, packing-house products, farming implements, construction material for the new Cuban Central Railroad, machinery for the neighboring plantations, etc.

Country.	Value.	Tariffs collected.
United States.....	\$2,315,605	\$420,468
Spain	630,104	217,465
France.....	160,961	39,208
Germany.....	789,624	139,107
England	575,546	138,925
Colombia.....	559,570	40,643
Uruguay.....	215,893	73,647
Venezuela	65,817	7,083
Mexico.....	53,110	3,910
Nova Scotia.....	47,087	763
Honduras.....	82,957	6,222
India.....	45,359	10,584
Porto Rico.....	17,335	10,719
Belgium	8,025	2,389
Italy	5,057	1,155
Switzerland.....	3,185	466
Holland.....	2,448	387
Sweden and Norway.....	1,392	102
Nicaragua	1,180	82
Caiman Islands.....	1,132	124
Ireland.....	642	128
Canary Islands.....	390	83
Jamaica.....	193	20
Austria-Hungary	16,737	3,932
Total	5,590,349	1,117,612

The exportation of sugar from this port during the year 1902 is given as follows:

Month.	Destination.	Sacks.	Net weight.	Value.
		<i>Number.</i>	<i>Pounds.</i>	
January	United States.....	37,332	12,119,276	\$231,869.47
February .....	.....do.....	79,253	25,719,545	494,865.86
March .....	.....do.....	148,254	47,921,450	861,610.54
April.....	.....do.....	187,571	60,309,977	1,037,886.88
May .....	.....do.....	163,848	52,823,465	863,430.21
June .....	.....do.....	153,181	49,113,117	789,142.81
July.....	.....do.....	32,379	10,329,305	163,894.74
August .....	.....do.....	67,665	21,157,508	291,746.58
September .....	.....do.....	50,191	16,008,653	272,135.69
October.....	.....do.....	41,596	13,121,030	222,935.62
November .....	.....do.....	32,135	10,382,305	176,954.44
December.....	.....do.....	9,744	3,133,430	66,273.39
Total		1,003,149	322,229,062	5,472,746.23
August	Colombia.....	1,022	331,300	3,346.43

MAX J. BAEHR,

CIENFUEGOS, April 24, 1903.

Consul.

Under date of May 1, 1903, Mr. Baehr adds:

Through the courtesy of the collector of customs, I have received the following statistics:

Statement of foreign vessels entering the port of Cienfuegos, with their gross and net tonnage, during the calendar year of 1902.

Nationality.	Steamships.			Sailing vessels.		
	Number.	Gross tonnage.	Net tonnage.	Number.	Gross tonnage.	Net tonnage.
		<i>Tons.</i>	<i>Tons.</i>		<i>Tons.</i>	<i>Tons.</i>
American.....	32	98,371	67,072	14	11,167	9,802
German	26	73,925	46,953			
Cuban.....	11	17,956	11,835			
Spanish	62	188,751	124,344			
Holland	2	5,252	3,391			
English	37	109,147	70,508	34	8,775	8,012
Italian	2	8,687	5,602			
Norwegian	81	126,559	80,369	1	388	354
Russian	1	1,160	664			
Sweden.....	1	1,182	1,194			
Uruguayan.....	1	2,232	1,409			
Total.....	256	633,922	413,341	49	20,328	18,168

The total number of vessels entering was 305, with a gross tonnage of 654,250 tons and a net tonnage of 431,509 tons.

Following are statements of the exportation of baled leaf and manufactured tobacco, bee honey, wax, purgative honey, and molasses during the calendar year of 1902:

Leaf tobacco, cigars, and cigarettes.

Article and whither exported.	Quantity.					Value.
	Bales.	Pack-ages.	Pounds net.	Boxes.	Number.	
<i>Leaf tobacco.</i>						
United States.....	4,695		623,437			\$195,385
Sweden.....	737		97,240			58,657
Holland.....	5	126	15,406			1,488
Canada.....	262		33,311			13,324
Germany.....	610		123,461			5,994
Total.....	6,309	126	892,855			274,848
<i>Cigars.</i>						
United States.....					24,000	962
<i>Cigarettes.</i>						
Colombia.....				5	230,000	427

Bee honey, wax, purgative honey, and molasses.

Article and whither exported.	Quantity.						Value.
	Bales.	Tierces.	Barrels.	Boxes.	Pounds net.	Gallons net.	
<i>Bee honey.</i>							
United States.....		180	66	170	167,047		\$7,296
Germany.....		206	221	165	305,029		9,097
Belgium.....		67		83	61,219		1,971
Total.....		453	287	418	533,295		18,364
<i>Wax.</i>							
United States.....	88		26	5	25,866		8,425
Germany.....	34		67	18	18,686		5,248
Total.....	120		93	23	44,552		13,673
<i>Purgative honey.</i>							
England.....						1,475,000	23,125
<i>Molasses.</i>							
United States.....		1				88	3

TRADE AT SANTIAGO DE CUBA.

Consul R. E. Holaday sends from Santiago, April 16, 1903, tables showing the exports from and the imports at that port for the quarter ended March 31, 1903, as below:

Imports at the custom-house in Santiago de Cuba and the corresponding duties paid on the same for the quarter ended March 31, 1903.

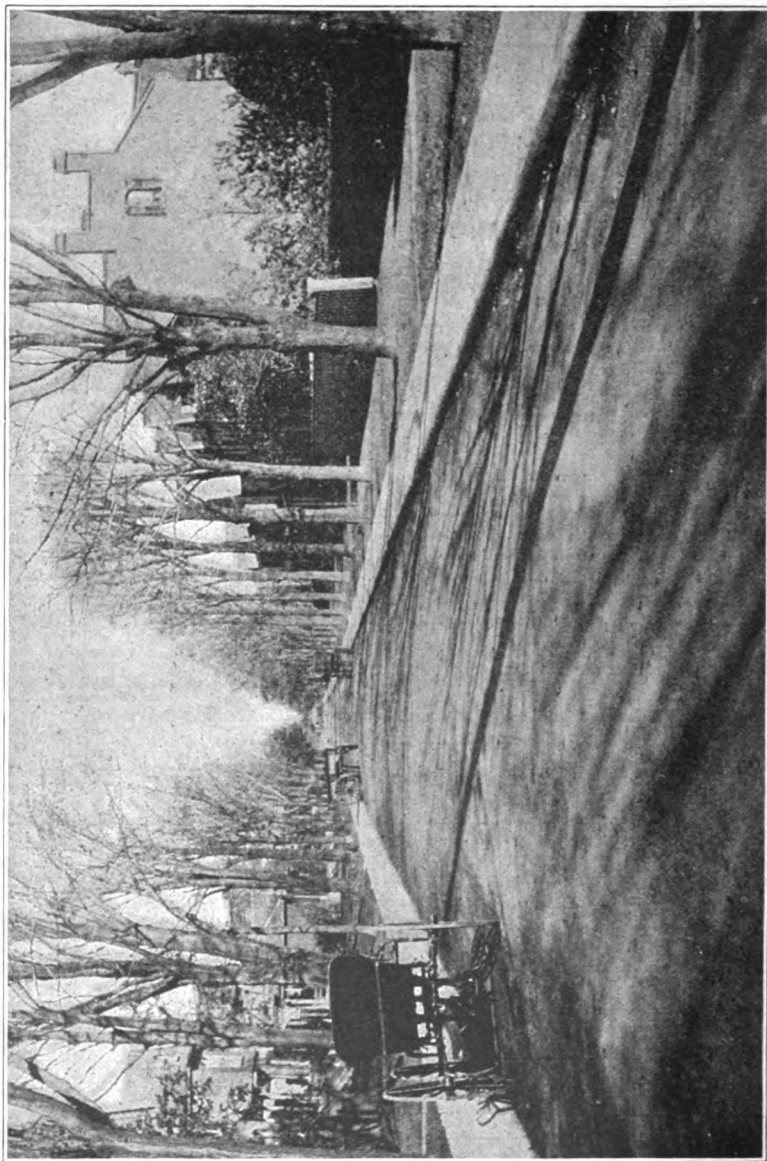
Country of origin.	Value.	Duty.
United States	\$477,034	\$68,625
England	190,146	51,767
Spain	178,393	42,948
France	53,220	15,007
Germany	43,264	12,517
India	64,694	14,283
Santo Domingo	13,188	62
Nova Scotia	37,606	4,808
Porto Rico	20,607	1,247
Switzerland	5,624	1,017
Belgium	4,320	1,061
Holland	4,937	931
Denmark	2,362	472
Ecuador	1,361	272
Italy	1,131	241
Jamaica	593	239
Austria	544	158
Uruguay	2,630	903
Haiti	2,367	209
Norway	130	10
Total	1,104,151	214,777

Exports from Santiago de Cuba to the United States and the declared value thereof for the quarter ended March 31, 1903.

Article.	Value.	Article.	Value.
Bones	\$186.76	Old metal	\$2,972.42
Cocoa	101,686.15	Rum	42.38
Honey	4,239.35	Sugar	276,292.77
Hides	8,588.48	Wax	1,606.15
Iron ore	241,658.00	Total	741,948.43
Lumber	74,800.97		
Manganese	29,875.00		

TAR-MACADAM ROADWAYS IN ONTARIO.

Good roads are the demand of the day, not only in cities, but also for country highways. The cost of roads of asphalt or brick puts them out of the question, save in the larger towns and cities. The old style of macadam road is impracticable in many of the Western States, because of the scarcity of stone and the cost of transportation,



TAR-MACADAM ROADWAY.

and where roads are surfaced with broken stone the material disappears in the mud of the prairies.

In a former report from this consulate* I gave an account of the tar-macadam roads that have proven to be a success in this city. During the six years of my official residence in Hamilton, I have carefully watched the progress made in the construction of roadways and each year has shown greater skill and better results.

A tar-macadam roadway has two advantages: the cost is from one-third to one-half that of asphalt or vitrified brick, and it is more enduring than either.

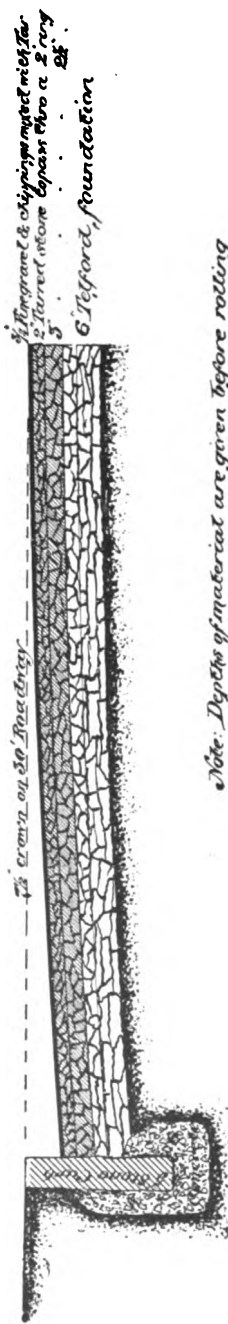
Twenty-two years ago a part of a street was laid with tar macadam, as an experiment, by the gas company in this city. It is used by teamsters in hauling heavy loads of merchandise from the railway. The manner of doing the work was crude in comparison with present-day methods, and little labor or money has been expended in keeping it in repair, yet that street is in good condition. Four years ago a block in the business center of the city was selected in which to experiment with the newer methods of combining stone and tar in road work. It is a block where heavy teaming is done, the largest wholesale iron and hardware store in the city fronting on it. After four years of hard usage, without a dollar being spent for repairs, that block of road is almost as smooth and in as good condition as when first made. The cost of construction was 68 cents per square yard. Two blocks on a business street, much used for heavy teaming, which were laid by the gas company some ten or twelve years ago, have recently been resurfaced at 25 cents per square yard, no repairs having been made up to that time.

The asphalt pavements put down in this city eight years ago cost more than twice as much as tar macadam to construct and have involved almost constant expense to keep in repair. Judging from experience, and with the latest methods of combining the material, a tar-macadam road will give good service for at least ten years, and it can then be resurfaced at a cost not exceeding 25 cents per square yard. The tar-macadam road is almost as noiseless as asphalt, and is easier on horses, with less jar and no danger from slipping in rainy weather. Another advantage is that it is almost dustless.

Since my first report on tar-macadam roadways, the cost of labor in Hamilton has advanced from 16 to 20 cents per hour, with a corresponding increase in the cost of the roadway, as shown in the following report of the city engineer, which I send because of the

*ADVANCE SHEETS No. 815 (August 23, 1900).

Half Cross Section of Tar Macadam Roadway



widespread interest taken in the subject, as evidenced by inquiries from all parts of the United States:

ENGINEER'S REPORT.

The city of Hamilton having laid about 8 miles of cedar-block pavement in 1885, and this pavement having rapidly deteriorated until in the year 1899 it became impossible to draw an ordinary load over it with safety, it was decided to replace the whole of this pavement with tar macadam.

During the years 1899, 1900, and 1901, 8.68 miles of tar macadam was laid at a total cost of \$145,061.

The method of construction has been frequently asked for, and for the benefit of those interested may be briefly stated as follows, viz:

Subgrade.—The cedar blocks composing the old pavement were removed. The blocks being 10 inches deep, it was necessary to remove 2 inches of the sand foundation underneath the blocks to allow of the full depth of 12 inches of tar macadam to be placed, so as to leave the curb in the same relative position with the finished surface of the roadway as before.

Rolling subgrade.—The subgrade was then rolled with a 15-ton roller, and any soft spots revealed were filled up and rolled until the whole surface had been worked to the proper grade and cross section, care being taken to keep the subgrade—as also each succeeding layer of materials—parallel with the finished cross section of the roadway.

Stone foundation.—The bottom course or stone foundation, 6 inches in depth, was next put in place. This consisted of stone varying from 6 inches to 12 inches laid roughly by hand on their natural or flat beds, after which stones of a smaller size were put on top and broken roughly in place, so that all the larger voids in the foundation stones were filled. This course was then rolled similar to the subgrade, care being taken, as before stated, to keep the cross section true.

Tarred stone.—The broken stone was now brought to the work and the process of tarring was gone through with as follows: Tar kettles, in which the tar was kept at the workable temperature and consistency, were placed conveniently to mixing boards similar to those used in mixing concrete.

Tarring.—The stone to be tarred was placed on the board and the tar applied to the stone by scattering with a swinging motion from a dipper fastened to a wooden handle of a convenient length to reach well down in the tar kettle.

After the first application of tar, the pile of stone was turned over twice by shoveling, the shovels being kept hot to facilitate the process. The operation of tarring was again gone through with alternate turnings of the mass until no bare spots could be seen on the stones, or, in other words, until each stone had a coating of tar.

Stone to be dry.—To give the best results, the broken stone must be entirely free from moisture before being tarred. As soon as the stone and tar had been thoroughly incorporated it was wheeled onto the roadway and raked into conformity with the cross section.

Rolling tarred stone.—It was found that if the rolling of this course were left for two or three days after being placed on the road, it required more rolling to compress and did not bind so firmly as when rolled soon after being laid, or as soon as a stretch of sufficient length to operate the roller economically had been laid. The stone used in this course was broken to a size to pass through a 2½-inch ring and was laid to a depth of 5 inches, as nearly as possible, before rolling.

Top course.—The third or top course was composed of gravel screened through a ¾-inch mesh and mixed with tar, about 20 gallons of tar being used to 1 cubic yard of gravel. This was mixed in an asphalt mixer and brought to the work hot,



FOUNDATION COURSE FOR TAR-MACADAM ROADWAY.

scattered over the roadway, and raked in very carefully, the utmost care being taken to get the surface to true grade and section, none but the most experienced men being employed in this portion of the work. The whole was then rolled, after which screenings from the crusher were scattered broadcast over the surface to be worked in by traffic, the object being to harden the surface of the pavement and to give it a more pleasing color than the dead black of the tar.

Curbing.—The curbing constructed with this pavement was composed of Portland-cement concrete, according to the section shown. The usual method of construction was reversed, inasmuch as the curbing was laid after the pavement had been constructed, the reason being that it was found to be much easier to set up the molds for the curb, the pavement being used to place the edges of the mold-boards upon. As soon as the curb had set, the molds were taken off and the ragged edges between the roadway and curb filled in with concrete and finished with cement mortar.

Cement walks along tar roads.—The method of constructing sidewalks outside the tree line and immediately alongside the traveled road has been employed here very extensively, and wherever this is done the curb is combined with the sidewalk, as shown. Whenever possible, the tar macadam has been laid before the sidewalk, so that the walk might not be disfigured with tar. This class of pavement has proved to be particularly well adapted for residential streets and streets where the traffic is spread evenly over the whole surface, but it is not satisfactory alongside street-railway tracks, where the traffic is confined to a narrow space on each side of the tracks. In several stretches put down here in 1899 along the street-railway tracks the pavement shows distinctly the marks of excessive wear.

Repairs.—No repairs have as yet been made on any of the pavements laid within the last three years. Some pavement, similar in construction, put down by the local gas company eight or ten years ago has been recently resurfaced at a cost of 25 cents per square yard, no repairs being done up to that time. The advantages of this class of pavement may be summed up as follows: Economy in construction, the average price for 1901, with labor at 18 cents per hour, being \$1.06 per square yard; good foothold for horses; and absence of dust—therefore economy in cleaning and sprinkling.

Flood.—As an illustration of how this pavement will withstand disintegration, I may state that on the night of April 29, 1901, during an unprecedented snow and rain storm, a large drain 8 by 2½ feet by 5 miles, situated on the plateau above the city and immediately at the upper end of the streets recently paved with tar macadam, choked, the whole volume of water coming over the mountain and rushing down over the pavement from 12 to 18 inches deep for twelve hours. The grade of the street is 3.4 per 100, so that the velocity was such as to carry with it large boulders and debris which had been dislodged from the side of the mountain in its descent.

The upper portion of the street was composed of plain macadam, the materials of which were all swept away, leaving ruts and holes in some cases 2 to 3 feet deep.

The tar macadam immediately adjoining this was practically unharmed, excepting alongside the curb where the surface coating was worn off in spots.

From specifications for constructing a tar-macadam roadway, prepared by Thomas Towers, an employee of the board of works of this city, I give also, in brief, his method:

In the excavation care should be taken to make the subgrade conform to lines of finished surface of the roadbed. Thoroughly roll the subgrade and fill all depressions. In light, loamy soil, from 1 to 1½ inches should be allowed in excavating

for compression by the roller. To improve the roadbed, it should be underdrained on each side at curb with 3-inch tile, at a depth of 3 feet at highest point, with a fall of 6 inches in 100 feet. These drains will keep the bottom of a 30-foot roadway perfectly dry.

The bottom course, or stone foundation, should be 6 inches in depth, of flat stone, varying from 6 to 12 inches, laid roughly by hand, after which stones of a smaller size are put on top, so that all the larger voids in the foundation stones are filled. This is then well rolled. Then come two layers of sharp-angled tarred stone—the bottom layer of stone that will pass through a 2½-inch ring and the top layer that will pass through a 2-inch ring. Spread a light coat of tarred gravel over the lower course of tarred stone before putting on the second layer of stone. Each layer should be thoroughly smoothed down with a heavy steam roller. This packs the roadway and makes it solid.

After smoothing surface of top layer, a top dressing, composed of two-thirds parts of fine sharp gravel and one-third part stone dust, mixed with 25 gallons of tar per cubic yard, should be carefully spread over the surface. Then spread fine stone dust very evenly over the top and roll with heavy roller. Pound the ditches and irregular places that can not be reached by roller with hand pounders.

The following table shows cost per square yard for 10-inch roadbed:

6-inch course bottom stone.....	\$0.112
4-inch course broken stone.....	.116
2.52 gallons tar per square yard.....	.197
Tarred gravel and stone dust.....	.082
Rolling.....	.016
Labor.....	.496
Underdraining per square yard.....	.06
Total.....	1.079

This price is for work in light soil and excavating only about 10 inches deep. In hard and uneven ground, from 10 to 20 cents a yard would have to be added for extra labor.

The method of tarring stone here is the old-fashioned way of turning the stone over on a sweat board, as in mixing concrete by hand. A good, strong asphalt mixer, with heaters run in connection with crusher, will reduce the cost of labor and cover the stone better with about one-third less tar.

The tar used in construction of this class of road should contain not less than 60 per cent pitch, retort dust and water to be practically excluded.

JAS. M. SHEPARD,
Consul.

HAMILTON, *April 22, 1903.*

HYDRAULIC LOCK IN ONTARIO.

Consul H. P. Dill sends from Port Hope, May 6, 1903, description of the hydraulic lift lock (now nearly completed) on the Trent Valley Canal, a few miles north of Peterborough, on the Otonabee River, which is said to be the largest lock of its kind in the world. The description follows:

There are two water-tight steel boxes or chambers, 33 feet in width by 140 feet in length, with 8 feet of water in the clear, and closed at the ends by means of gates hung on the lower edge.

Similar gates also close the ends of the reaches. These chambers are carried by means of heavy trusses supported on top of two rams, 7 feet 6 inches in diameter, which work in two steel water-tight presses, one under each chamber. The presses are connected with each other by a pipe 12 inches in diameter, in the center of which a valve is placed for the purpose of regulating the motion of the chambers. For the purpose of making up for the small quantity of water lost in the working of the main presses, an accumulator is installed in one of the side towers. This accumulator has a ram 20 inches in diameter, with a stroke of 30 feet 6 inches, working at a pressure slightly greater than that of the main presses. Its pressure is also used to operate the gates, capstans, and small pumps. The junction between the ends of the movable superstructure and the ends of the reaches is made water-tight by means of a continuous rubber hose placed on the outer sides of the ends and bottom of the gate of the reach. This hose is inflated with compressed air from a Taylor air compressor installed in the main wall.

The mode of operating the lock is as follows: Supposing both chambers are at a standstill, one up and the other down, both gates toward the reach open ready for the vessel to enter. When the chambers are thus the bottom of the upper chamber will be about 10 inches lower than the bottom of the canal above, and has, say, 8 feet 10 inches of water on the sill. The bottom of the lower chamber will be just level with the bottom of the canal below, and will have 8 feet of water on the sill. Thus the upper chamber has 10 inches more water in it than the lower chamber, and consequently is so much heavier than the lower one (approximately 100 tons). The valve in the connecting pipe between the two presses is closed. When it is desired to operate the lock gates at the end of each chamber, and the gates at the ends of the reaches are closed, the air is allowed to escape from the air hose—making the water-tight seal between the lock and the end of the reach—and the operator, who stands in his cabin on the top of the central tower, opens the valve in the connecting pipe between the presses. The upper chamber then commences to descend and the lower chamber to ascend till both chambers reach their new positions, the upper chamber being now level with the lower reach and the former lower chamber being opposite the upper reach. The operator now closes the main valve in the connecting pipe and inflates the air hose forming the water-tight seal at the end of the lock. When the chambers are in their new positions, the surface of the water in the lower chamber is 10 inches above the surface of the water in the reach below and the surface of the water in the upper chamber 10 inches below the surface of the water in the reach above.

Communication between the water in the chambers and the reaches is now made by opening the valves in the gates nearest the reaches, and the water in each chamber is allowed to find its own level. The gates are then opened. When this is done the chambers are in the condition they were on starting. Vessels are hauled in and out of the chambers by means of hydraulic capstans. The time allowed to lock and pass one or two vessels in and out of the lock will be from twelve to fifteen minutes. The time required to raise or lower the lock chambers will be about three minutes. On the upstream side of the lock a guard gate will be placed which will be operated by hydraulic power and will be closed when a vessel enters the lock. The substructure of the hydraulic lock is built of concrete. The natural surface of the limestone is at such an elevation that very little expense is necessary for the finishing of the floors at the lower-reach level. The main retaining wall—126 feet long by 40 feet thick—rests upon the limestone formation. Its height will be about 83 feet. The sides are carried up plumb for their whole height, the bearing pressure upon the lock being only about 6 tons per square foot. The steel superstructure is being built by the Dominion Bridge Company, of Montreal.

COAL INDUSTRY IN BRITISH COLUMBIA.

The Vancouver Island mines are better developed than ever in the history of the Province of British Columbia. During 1902 coal was mined to a larger extent than ever before, notwithstanding the competition with the fuel oil of California. Some 1,731,000 tons of coal were mined in the Province during 1902, and about 200,000 tons of that amount were converted into coke, making 127,800 tons of this latter product.

There has been an important discovery of anthracite coal 4 miles from Cumberland, near the celebrated Comox mines. The deposit is found to be extensive, the same vein cropping out in places 2 or 3 miles apart. None has been brought to market, but 60 men are employed in developing it and a railway is in process of construction thereto. The anthracite is of excellent quality, shows an analysis of 80.7 in carbon, and is practically smokeless. The Wellington Colliery Company, which owns the ground, expects to have the coal on the market by next fall.

The Extension mines, 10 miles south of Nanaimo, owned by the Wellington Colliery Company, have been closed since the middle of March. The cause is not any question of wages. In March a meeting of the employees was held to consider the question of asking for increased wages, when, at the instance of a representative of the Western Federation of Miners (an organization which has its headquarters in California), a large majority of the men present voted to form a union and to make it a branch of the Western Federation. As soon as news of this action reached Mr. James Dunsmuir, the president of the Wellington Colliery Company, he directed that a notice be placed all through the vicinity that the mine would be closed April 1, 1903. The men responded on March 10 by voting to quit work at once. Since then not a ton of coal has been produced in this great mine. The men insist on their right to join any union they choose, and the directors of the Wellington Colliery Company maintain that while they have no objection to the men forming a union among themselves, they will not employ men who belong to an international organization and are subject to the orders of men living outside of Canada. The result is that 1,000 miners have been idle for six weeks, and the town of Ladysmith is rapidly becoming depopulated. Large numbers of the miners have left the island and have obtained work in the Crow's Nest, or Washington, mines. The president of the colliery company, in a published interview, insists that he has spent millions of dollars in the development of

his mines and will not submit to any interference by outside labor organizations, but will rather close his mines for ten years.

Up to date, therefore, the expected extension of coal export to San Francisco, owing to the suspension of the United States duty on coal, has been effectually checked. Indeed, a coal famine in this city has been prevented only by the importation of coal from Washington, and the price has been raised from \$6 to \$6.50 per ton for household use.

The acuteness of the situation here has been brought to the notice of the Dominion authorities at Ottawa, and a labor commission appointed to investigate the same. It will next month commence to receive evidence in Victoria and other points in the Province, but there is no promise of either side agreeing to accept the findings.

ABRAHAM E. SMITH,

VICTORIA, *April 23, 1903.*

Consul.

ELECTRIC PROJECT FOR QUEBEC.

A project for an extensive electric-railway system through the south shore counties and eastern townships of Quebec is now in tangible form. It is understood that two main lines will be commenced this season, one to connect Montreal with St. John's by way of Longueuil and Chambly and the other between Montreal and Valleyfield, closely following the river bank and taking in St. Lambert, Laprairie, Chateauguay, and Beauharnois. The roads are to be built with heavy tracks and in the most modern way, the cars being 50-odd feet in length, supplied with air brakes and motors capable of running at a speed of between 50 and 60 miles in straight stretches. There will also be parlor coaches for private parties.

It is claimed that this will be one of the largest electric-railway systems in Canada, and it will form part of vast plans now being mapped out for an electric road to connect New York with Montreal. It is understood that connections will be made with the important trolley roads in eastern New York—the Berkshires—and nearly a dozen systems in Vermont. Among the lines that are expected to serve as feeders for the projected main line, besides the Montreal and Southern Counties Railroad, are the Troy Traction Company, the Bennington Hoosick Railroad, the Hudson Valley line, the Troy and New England Company, and the Berkshire Street Railway Company, with about fifteen other corporations of less importance. The scheme is reported to be backed by capitalists from New York, Boston, and Chicago. The proposed main line from New York to the Canadian border would pass through much attractive scenery,

the shore of Lake Champlain, which it will follow, being particularly beautiful. The Montreal and Southern Counties Railway route will also have the scenic advantages of the Richelieu and St. Lawrence rivers. It will further enable the farmers all along the south shore to reach the markets of Montreal with their products. The company's intention is to make special arrangements for the carrying of all kinds of farm products between midnight and 6 a. m., thereby allowing the farmers to get their stuff into Montreal in good condition for the morning market.

STANBRIDGE, *April 23, 1903.*

FELIX S. S. JOHNSON,
Commercial Agent.

NEW STEAMSHIP LINE FROM LA ROCHELLE TO CANADA.

The Finska Lloyd Navigation Company, of Helsingfors, Finland, has established a new Franco-Canadian service between this port and Montreal, calling at Quebec. The sailings take place monthly. The first vessel of this service to sail from La Rochelle was the *Hektos*, which left on the 15th instant with about 1,200 tons of cargo, which may be considered very favorable, as this is the only direct steamship service between France and Canada, and the traffic has not yet been organized.

I understand that three return cargoes of about 3,000 tons each have already been secured for La Rochelle.

The line commences its service with two new freight steamers of about 3,000 tons each, large enough, with the aid of the Canadian subvention, to test the practicability of a direct Franco-Canadian service.

LA ROCHELLE, *April 24, 1903.*

GEORGE H. JACKSON,
Consul.

CANADIAN TARIFF ON GERMAN GOODS.*

The announcement was made by the Government on April 17 that a surtax equal to one-third of the present duties would be imposed on all articles imported from Germany. This is due, it is said, to German discrimination against Canadian goods. This tax will not apply, however, to goods already ordered by Canadian firms.

In 1901, Canada imported from Germany for home consumption goods to the value of \$7,021,405, and last year the imports reached

* The same matter is covered in a report by Commercial Agent J. E. Hamilton, of Cornwall.

the sum of \$10,823,169, being a little more than one-fifth as large as those from Great Britain and about \$4,000,000 more than from France.

It was also announced that a duty of \$7 a ton would be imposed on steel rails, as soon as Canadian firms manufacture enough for the home market. The St. Lawrence canals are declared free of all tolls for a period of two years, and beet-root-sugar machinery and machinery used in alluvial gold mining are to be free from duty for another year.

GUSTAVE BEUTELSPACHER,
Commercial Agent.

MONCTON, *April 18, 1903.*

GERMAN COMMERCE WITH CANADA.

The recent movement in Canada to increase duties on German imports, in retaliation for the measures which Germany adopted against Canadian food stuffs in 1898, is causing much uneasiness in this Empire. Coming in the footsteps of the Bloemfontein conference in South Africa, which declared a preferential tariff in favor of British goods, it shows that it will be no easy matter for Germany to conclude commercial treaties on the basis of the tariff law passed by the Reichstag last winter. Germany has always regarded the British colonies, especially Canada, Australia, and South Africa, as territories commercially independent of Great Britain, and has persistently opposed the right of an English colony to adopt a preferential tariff in favor of the mother country, insisting upon the favored-nation clause. The feeling in Germany has been that England would never be able to establish a "zollverein" with her colonies. In view, however, of events which have transpired during the past three years, it is thought that England is slowly but surely attaining this end.

German-Canadian commerce during the past four years was as follows:*

Year.	Exports to Canada.	Imports from Canada.
1898	\$5,688,200	\$1,404,200
1899	5,642,200	999,600
1900	4,760,000	1,523,200
1901	6,307,000	1,761,200
Total.....	22,397,400	5,688,200

* Statistisches Jahrbuch für das Deutsche Reich, 1902.

It will be seen that Canada has purchased from Germany during the past four years four times the value of German purchases from Canada. The statistics from 1892 to 1898 show the same trade balance in favor of Germany. Canada sends to Germany wheat, iron ore, nickel, and agricultural machinery. Germany sends to Canada sugar, clothing, woven goods, and toys. It will be interesting to watch how the two countries adjust the tariff differences.

EIBENSTOCK, *April 20, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

GERMAN CHAMBERS OF COMMERCE.

The German Empire is divided into 145 chamber of commerce districts. Each chamber of commerce has control of its own finances and is compelled by law to appoint an able and experienced man as secretary. The members of the chamber appointed on committees, etc., must serve without salary. Any outlay made by them, however, in the interests of the chamber is refunded. At the beginning of the year every chamber publishes a plan of the work and policies which it proposes to carry out during that year.

The oldest chambers of commerce in Prussia—namely, those in Crefeld, Cologne, Aix la Chapelle, Cupen, and Stolberg—were founded by the French Government at the beginning of last century, when that country held possession of the Rhine Province.* The Prussian Government continued the work and founded chambers of commerce in Wesel, Solingen, Koblenz, Düsseldorf, Duisburg, and Essen. In 1848 Prussia passed a law which prescribed that a chamber of commerce should be established in every city or district where the importance of the commercial and industrial interests warranted it. In accordance with this law, numerous chambers were founded in Silesia, Westphalia, and the Province of Saxony.

The law under which the present organization of German chambers of commerce was effected, which dates from 1870, permits these institutions to take the initiative in all matters of trade in their respective districts, the Minister of Commerce and Industry reserving to himself the right of confirming or rejecting grants of charters and certain laws.

The chambers of commerce in Prussia have not all attained the same degree of efficiency. In many parts of East and West Prussia there are few, if any, industries. A great difference also exists in the capacity for and the quality of work done by different chambers.

*Anyone wishing information on the subject of French chambers of commerce should apply to the American Chamber of Commerce, Rue Scribe, 3, Paris, France. This chamber has prepared a report on the subject which has just been issued as a bulletin.

The yearly budget of the Chamber of Commerce in Frankfort-on-the-Main amounts to \$11,900. That of Breslau amounts to \$7,568, while those in Oppeln, Halberstadt, and Hanover receive \$5,000 each annually. There are about 30 chambers of commerce in Prussia which receive about \$1,000 each year, and there are a number which do not receive more than \$200. It will therefore be readily seen that the efficiency of these chambers must, in the nature of things, vary greatly.

There are complaints made in Germany to-day that notwithstanding the acknowledged efficiency and high reputation enjoyed by many chambers of commerce, and the praiseworthiness of the system in general, these organizations still do not occupy the place in the Empire which the importance of German commerce and industry would warrant. The radical changes introduced by the industrial growth of the Empire during the past thirty years have greatly increased the demands made upon the chambers. Prior to 1870 the industries of Germany were for the most part located in certain districts, each district being more or less independent of each other. As long as this was the case, the chambers of commerce were considered to be sufficiently well organized. With the application of modern machinery to almost every industrial enterprise, together with the rapid increase of German markets in foreign countries, it has been found that many of these institutions are unable to meet the demands made upon them. It is the desire of those interested in chamber of commerce work that those chambers located in large industrial centers should gradually expand and absorb the small ones in outlying districts.

German chambers of commerce exert a powerful influence on legislation in the Empire. During the long preparation of the tariff bill which was recently passed by the Reichstag, these bodies made their influence felt in every part of the country. When a German manufacturer desires to have his interests considered in tariff legislation or commercial treaties, he does not have recourse to the member of the Reichstag from his district, but to his chamber of commerce. The Government, in its treatment of commercial questions, always obtains the opinions of merchants and manufacturers through the medium of the chambers of commerce.

A few years ago a circular letter was sent to each chamber of commerce, as well as to the municipal authorities in many of the large cities, asking for opinions in regard to chamber of commerce reform. The answers were such that the German Government decided to change the laws passed by Prussia in 1870 and to introduce reforms which would strengthen the influence of these bodies all over the Empire, especially those in districts where commerce and

industry had made but little progress. Each chamber is now regarded by the Government as a full legal person, or corporation. The boundary lines between the districts have been defined, and many weak districts have either been abolished or incorporated with others.

The duties of a German chamber of commerce are, in the first instance, to further by every means at its command the commercial and industrial interests of the district in which it is situated. It takes the initiative in examining any new enterprise which may materially benefit the district; it actively interests itself in the building of new railways, canals, and steamship lines, for the reason that cheap and rapid transportation is one of the pillars upon which a commercial state must stand or fall. The chamber also interests itself in the establishment of commercial museums or sample rooms, and studies ways and means of getting the same as advantageously as possible before the commercial world.* The furtherance of technical education is one of the prime features of German chamber of commerce activity. A deep interest is taken in the welfare of apprentices, and much is done to elevate their morals and habits.

These organized chambers of commerce have probably done more toward building up German commerce than any other one factor. The immense growth in population and the everincreasing need for additional markets have forced the merchants, manufacturers, and trading classes of the Empire to seek new fields of activity. The German chamber of commerce has been a powerful medium in assisting these classes to entrench themselves in different sections of the world where Germany's great overproduction may be introduced. I venture to say that there is not a chamber of commerce in the Empire which is not thoroughly posted in regard to the markets in South America, China, and all the British colonies. These chambers of commerce are wide-awake, keen, and aggressive, always on the alert to foresee and investigate possible changes in trade, both at home and abroad. They are not institutions which simply gather a lot of dry and uninteresting statistics, but they take the initiative in keeping mercantile classes posted with reliable information.

The annual reports of German chambers of commerce are instructive and reliable. No space—not even the cover—is given to advertising. The introduction deals with the general state of trade and manufacture in that particular district for that year. A chapter is devoted to the activities of the chamber; its internal affairs are discussed. Then comes the condition of labor and the relations between the workingman and his employer. Insurance, sample exhibits, commercial schools and the subjects taught in them, transportation, new railways, telegraphs, taxes, the state of export trade,

foreign tariffs, commercial treaties, etc., are treated. Another chapter deals with different agricultural products, such as grain, vegetables, potatoes, textile plants, clover seed, fruit, etc. Meal, sugar, mustard, beer, and cigars are also treated, and in this connection the import of coffee, rice, and tropical fruits is taken up. A chapter is devoted to the production and consumption of meat, milk, butter, cheese, and fish; another, to timber and the products derived therefrom. The pulp-mill and paper industry and the manufacture of baskets, furniture, beer casks, and pipe heads are described in detail. The annual reports of the chambers of commerce in Plauen and Chemnitz treat exhaustively the whole subject of the textile industry. The reports of the chambers in Hamburg and Bremen deal with shipping and foreign trade in general. The chamber in Frankfort-on-the-Main treats thoroughly such subjects as chemicals, drugs, colors, and dyes.

The German Minister of Commerce and Industry has the power to inspect the various chambers of commerce. His authority in this direction is not especially defined, but his right to advise, suggest, and even interfere in the internal organization of any chamber is universally acknowledged. On the other hand, however, he is not permitted to influence in any way either the actual work or the policies of the chambers. Upon the recommendation of the minister, any chamber of commerce may be abolished by the Government. The minister reserves the right at all times to examine the finances of a chamber.

There are many features of the German chambers of commerce which might be adopted with advantage and profit by our commercial organizations in America. According to the list of national, State, and local commercial organizations published by the Interstate Commerce Commission in 1898, there are many institutions in our large cities which are grouped under the names of "commercial clubs," "business men's leagues," and various "exchanges" and "associations." As far as I have been able to learn, they are, for the most part, entirely out of touch with each other. Many of them are doing good work, but they would probably do a great deal more for the commercial interests of the community and the country at large if they were grouped under one well-organized head and termed chambers of commerce.

We need the German system in the United States so far as thoroughness is concerned. The German chambers secure for secretaries the best men they can obtain, and they hold their positions for life or during good behavior. The average secretary in a well-established chamber receives a salary of \$2,000 or \$2,500 per annum. The schools of commerce which have been founded in many of our

State universities during the past two years are preparing just the sort of young men we need as secretaries of our commercial bodies. Our agricultural, trade, and manufacturing interests are increasing at a very rapid rate, and we must have outlets abroad for our over-production. The future security of our foreign markets will depend upon our ability to meet all emergencies. Well-organized chambers of commerce at home are an indispensable necessity.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *April 18, 1903.*

EXPOSITION FOR LABORERS' WELFARE IN GERMANY.

My report on the Exposition for Laborers' Welfare in Germany* having evoked inquiries from the United States for further data, I give the following additional details:

The exposition building is situated at Charlottenburg, Frauenhoferstrasse 11-12. Employers, manufacturers, and inventors of new apparatuses for the prevention of accidents will be allotted space for exhibiting their contrivances free of charge. The articles shall be exhibited either in the form of a model or in natural size, and the machinery, when provided with electric motors, shall be exhibited in operation. For the necessary power, no charge will be made. The management will provide competent parties to give visitors instruction as to the working of the machinery, keep it in condition, and see that it is properly guarded, but will not be responsible for any theft or damages to the exhibited articles, for which the employees of the exposition are not responsible.

The expense of transportation to and from the exposition, as well as the mounting of machinery, when necessary, must be borne by the exhibitor.

Concerning the admission of exhibits, the management will decide after consultation with a committee to be appointed by the Chancellor of the Empire. When it appears that articles exhibited can be replaced by later inventions or improvements, or are not practical in their application, owners will be requested to remove them.

It would seem that both employers and laborers will derive benefit from the exposition, while trade inspectors, etc., will be aided in the fulfillment of their duties. The exposition will probably be of particular value for engineers and technologists.

JOSEPH J. LANGER,
Consul.

SOLINGEN, *April 27, 1903.*

RAILWAY FREIGHT RATES IN GERMANY AND THE UNITED STATES.

In view of numerous inquiries received by this consulate-general from citizens of the United States with reference to the freight rates of German railroads, the following figures (taken from a lecture by Privy Counselor Dr. Franz Ritter Le Monnier before the Austrian Society of Engineers and Architects) may be of interest:

The average freight rate of the American railroads, in spite of the growing railroad trusts, has declined strongly for the last thirty years. Count Moltke, who closely studied these rates, stated that in 1870 the American railroads received 5.2 pfennigs (1.2 cents) per ton and kilometer (0.6214 mile); in 1900, however, the rate was only 1.81 pfennigs (0.43 cent); therefore the American railways transport their freight at exactly one-half the charge of the German State Railroad, which is 3.62 pfennigs (0.86 cent) per ton and kilometer (0.6214 mile).

Where the transportation is partly by rail and partly by vessel, the rate declines still further. The freight charge for wheat over the railroads from Chicago to New York is only about 9 marks (\$2.14) per ton, while in Germany, upon the railways between Bromberg and the Rhine (only about half the distance), the charge is 38 marks (\$9.04)—more than four times as much.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *April 28, 1903.*

HEBREW SCHOOL OF AGRICULTURE IN GERMANY.

The school at Ahlem, near Hanover, is an interesting ethnological experiment, as it is the purpose of its founder to reawaken among the Jewish classes a taste for the various handicrafts and the agricultural pursuits of their ancestors. The theoretical and manual instruction gives the pupils the opportunity of making themselves capable, self-supporting artisans.

The institution was founded by the philanthropist Mr. A. M. Simon, and is supported from funds supplied by him and contributions by others interested in the work. While the German element predominates, among the students there are boys and girls enrolled from Austria, Russia, and Roumania. A home is provided for Jewish children of the poorest classes, many of whom are orphans.

The school was opened in June, 1893, with nine pupils. In 1895 the number had increased to 50, and at present there are 92 boys and 26 girls. The instruction given the boys combines the common branches of the elementary and grammar schools with training in the use of carpenter's tools, etc. At the age of 14 the boys commence an apprenticeship of three years, during which time they receive a general course in horticulture and agriculture. The

theoretical instruction given to the apprentices is considered of secondary importance, and is stopped entirely when the work in field and garden requires attention.

The girls' building has accommodation for 80 pupils and includes laundry, kitchen, sewing rooms, store rooms, etc. The girls are given the same instruction, up to the age of 14, that they would receive at a public school, and in addition a thorough training in all manner of household work. The pupils are constantly under Hebrew religious influence.

A number of the students after leaving Ahlem have found good positions as gardeners near New York and Philadelphia, and their employers are reported to be well satisfied with their services.

The institution may serve as a model worthy of imitation for directing individual charities into proper channels and centralizing private efforts, thus conferring not only temporary aid upon the poor and needy, but a lasting benefit upon society in general.

HANOVER, *April 28, 1903.*

JAY WHITE,
Consul.

ELECTRIC CRANES IN GERMANY.

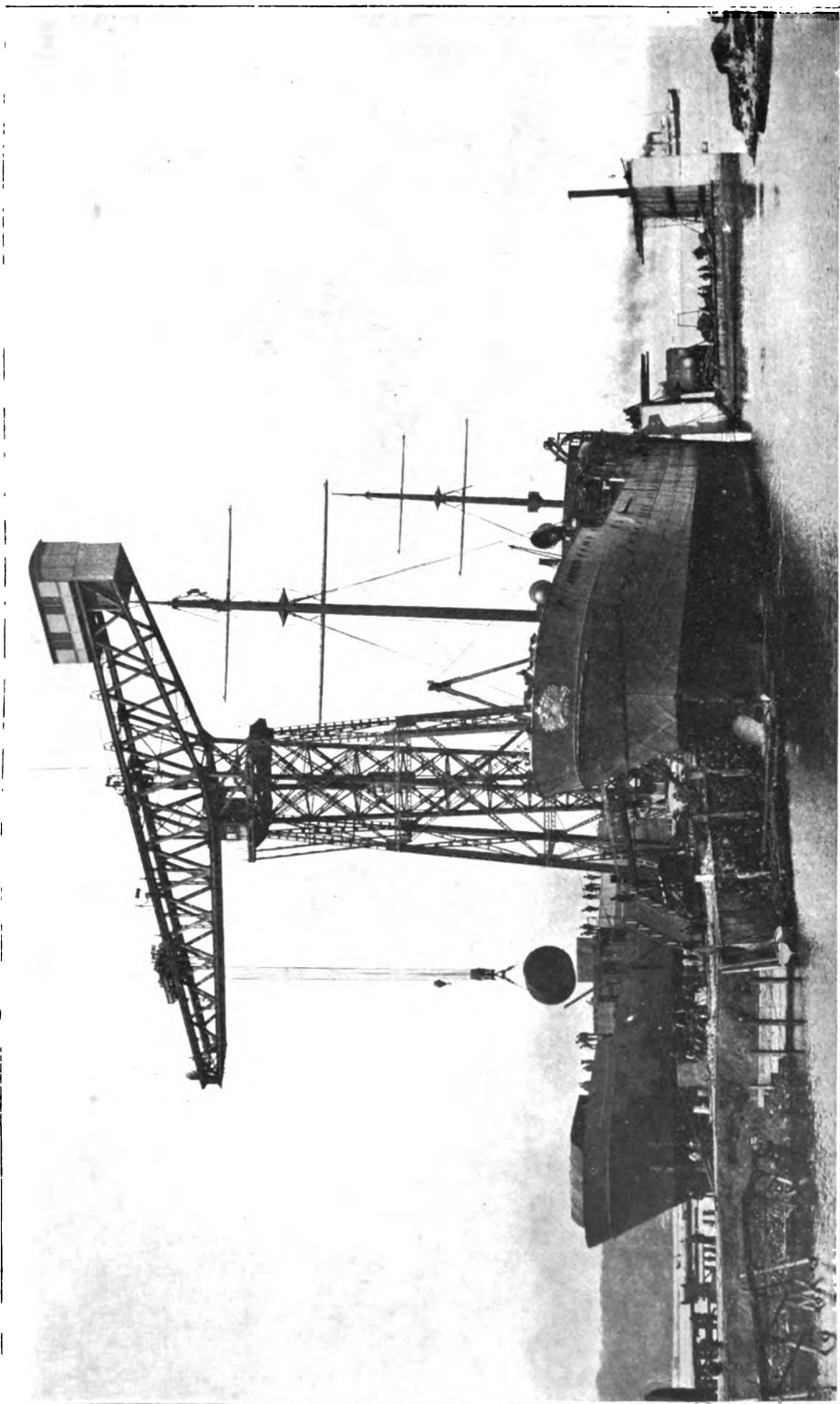
Electric cranes have become indispensable in shipbuilding and in the transport of heavy merchandise. A few years ago, hand cranes were in use in German shipyards and on the harbor docks. These were soon superseded by steam cranes, and to-day electric cranes are not only in use on shore, but all the large German passenger steamers are likewise fitted up with them.

In order to move great masses of armor plate, heavy machinery, boilers, and smokestacks from the docks on shipboard, it became necessary to build cranes of enormous size and strength. The largest crane of this class in the world is now in use in the harbor of Kiel. It is so arranged that two of the largest vessels afloat may steam up on either side of it (see illustration) for the purpose of unloading or exchanging cargoes. The crane is powerful enough to lift 150 tons at one time. The machinery is set in motion by electricity. It was built by the firm of Gebrüder Howalt, in Kiel. The iron construction was furnished by the Benrather Machine Company, near Düsseldorf, and the electric outfit by the Union Electrical Company, in Berlin.

There is another crane in use in Germany which is called the floating crane. It is built on a large, massive flatboat, and is easily moved from place to place at will. These are used principally in the construction of dry docks.

EIBENSTOCK, *April 13, 1903.*

ERNEST L. HARRIS,
Commercial Agent.



ELECTRIC CRANE IN USE AT KIEL.

CONSULAR REPORTS No. 274—face page 386.

CHANGES IN CHEMNITZ HOSIERY AND GLOVE EXPORT.

During the last year, some very significant changes have taken place in the export of hosiery and gloves from Chemnitz to the United States, totally reversing the tendency for the last decade. There had been, from 1890 to 1900, a continued decline in the woolen and silk hosiery and gloves shipped from Chemnitz to the United States, especially in silk gloves. Cotton gloves, on the other hand, had shown an increase since the early nineties; while the cotton-hosiery export declined from 1889 to 1897, and after 1897 gained slightly up to the year 1902. During the last year, however, the export of all kinds of gloves and hosiery increased enormously. Most extraordinary was the trade reversal in favor of woolen gloves for the winter season of 1902-3 and in silk gloves for the present summer season.

The following table shows the export of hosiery from Chemnitz to the United States during the last thirteen years:

Year.	Hosiery.		
	Cotton.	Woolen.	Silk.
1889-90.....	\$6,103,348.58	\$225,374.63	\$275,611.84
1890-91.....	5,118,400.73	116,045.12	185,007.75
1891-92.....	4,494,150.26	141,178.21	158,672.46
1892-93.....	4,865,061.48	118,414.45	176,754.09
1893-94.....	4,108,368.20	56,136.34	60,438.19
1894-95.....	5,366,991.75	143,704.67	149,637.83
1895-96.....	4,302,430.00	253,144.00	63,189.00
1896-97.....	4,324,159.47	221,634.28	40,258.73
1897-98.....	3,223,864.84	53,036.58	52,530.90
1898-99.....	3,177,825.00	90,206.00	37,443.00
1899-1900.....	3,515,001.29	66,418.42	41,735.20
1900-1901.....	3,017,213.20	56,499.30	42,723.86
1901-2.....	3,778,126.47	66,137.58	61,729.36

The export of gloves during the last thirteen years was as follows:

Year.	Gloves.		
	Cotton.	Woolen.	Silk.
1889-90.....	\$465,690.69	\$686,171.22	\$681,652.35
1890-91.....	359,806.34	263,590.25	501,820.64
1891-92.....	310,639.68	344,031.10	472,215.93
1892-93.....	470,828.33	461,642.04	530,913.55
1893-94.....	223,491.28	200,807.21	145,300.58
1894-95.....	246,800.08	164,274.49	374,353.07
1895-96.....	256,637.00	381,456.00	271,490.00

Year.	Gloves.		
	Cotton.	Woolen.	Silk.
1896-97.....	\$233,107.95	\$293,881.58	\$115,450.53
1897-98.....	244,887.81	36,161.66	112,390.28
1898-99.....	320,701.00	134,285.00	147,775.00
1899-1900.....	420,522.43	108,875.72	111,568.21
1900-1901.....	622,663.66	118,212.22	96,621.11
1901-2.....	764,812.28	419,528.08	91,647.13

The enormous increase in the export of hosiery and gloves is well demonstrated by a comparison of the movement during the last nine months with that of the entire preceding year, from July 1, 1901, to June 30, 1902:

Period.	Hosiery.		Gloves.		
	Cotton.	Silk.	Cotton.	Woolen.	Silk.
From July 1, 1902, to March 31, 1903.....	\$3,766,576.15	\$76,829.78	\$887,016.24	\$673,454.56	\$329,679.98
1901-2.....	3,778,126.47	61,729.36	764,812.28	419,528.08	91,647.13

It will be seen that the export in cotton hosiery for the nine months from July 1, 1902, to March 31, 1903, almost equals that for the entire preceding year. In silk hosiery the export is in excess of that for the preceding year, and is also heavier than that for any earlier year since 1893. Remarkable is the figure which represents the export in cotton gloves. During the nine months a larger quantity of these gloves was shipped to the United States than during any other entire year in the history of the consulate. The amount of \$887,016.24 is about twice that for the year 1889-90—a year of uniformly heavy exports from this consulate. The woolen-glove export for the nine months almost equals that for the best year of the past. It is more than five times the export for the entire year 1898-99. During the months of July, August, and September alone, \$441,886.75 of woolen gloves were sent to the United States. The export of silk gloves for the nine months exceeds that of any entire year since 1892. It is three times the export of 1899 and almost four times the total export for the last preceding year.

The local textile industry has, because of this extraordinary activity in the export trade, enjoyed the greatest prosperity, and, judging from the number of American buyers who are now upon the field and the orders placed, a heavy trade may be looked for during the rest of the year.

J. F. MONAGHAN,
Consul.

CHEMNITZ, April 24, 1903.

BRITISH LACE AND HOSIERY EXPORTS.

The promise of activity in the English lace trade at the beginning of this year is thus far well sustained. Unsettled weather has retarded the home demand for fancy laces, but orders for export are quite satisfactory. There is a considerable run on mercerized cotton goods, and signs of a probable revival of silk laces, which have languished in recent years, are noticeable.

The total value of lace exports from this country during the first four months of this year, according to the Board of Trade figures, was roundly \$6,000,000. For the corresponding period of 1902 the total was \$5,500,000; of 1901, \$5,000,000. The declared value of lace exports from Nottingham to the United States during those periods, in round numbers, was: In 1901, \$1,700,000; in 1902, \$1,750,000; in 1903, \$2,000,000. As many small exports to the United States do not appear on the consular records, and as laces totaling a considerable value were declared at other consulates during the periods named, it would seem that nearly one-half the British laces sold abroad go to our country.

Of hosiery there has also been some increase in the total export for the period in question, but the sales to the United States show a steady decline. The firmness of the wool market is having a good effect on the hosiery trade, as a whole.

FRANK W. MAHIN,

NOTTINGHAM, *May 8, 1903.*

Consul.

MUNICIPAL SOCIALISM: LATEST DEVELOPMENT IN GREAT BRITAIN.

Since the publication of the consular report on "Municipal socialism in Great Britain" of April 25, 1902,* the question has become a live topic in this country, in Parliament, before economic associations and municipal councils, and particularly in the press. The following article is from the Liverpool Daily Post, of April 7. It states the question fairly from a neutral standpoint, and the information contained therein may be taken as supplemental to that given in the consular report above referred to. The article is probably the most reliable and up-to-date report in a brief form of the development of "municipal trading" in Great Britain which can be obtained. In this reproduction of the Daily Post's article, the

*ADVANCE SHEETS No. 1345 (May 19, 1902).

amounts have been reduced from pounds sterling into United States currency:

The subject of municipal trading is one which has aroused considerable interest of late, and many arguments have been adduced for and against it by its advocates and opponents. Those who are opposed to municipalities engaging in reproductive undertakings say that such action discourages private enterprise and paves the way for socialism. They assert that municipal bodies have not the special knowledge which is required in order to conduct such undertakings to a successful issue. They fear that if municipalities engage in trade the time which ought to be devoted to the proper duties of administration will be frittered away on trading and manufacturing details. It is their opinion that to put town councilors in the position of having to regulate the wages of their electors would have a tendency to set wages against votes, and would raise very difficult labor questions. And they state that the expenditure upon such undertakings increases the burden of the rates, which is already unduly heavy.

In reply to this indictment the advocates of municipal trading deny that it encroaches upon private trading, as it only deals with works of public utility, which private capitalists either can not accomplish or can not do so well. They say that a committee of town councilors, specially selected for their business ability, and having a highly trained permanent staff under them, are quite as competent to deal with matters such as gas, water, and tramways as the board of directors of a gas company, a water company, or a tramway company; and they show that whereas in the case of a company the profits go into the pockets of the shareholders, many of whom are nonresident and have no connection with or interest in the town, in the case of a municipal enterprise the profits go into the borough fund in alleviation of the rates. They regard the suggested labor difficulties as chimerical, as no town council has any control over the standard rate of wages, and it is in the last degree improbable that the ratepayers would consent to a higher scale being paid. They point out that gigantic trusts are being everywhere formed with the object of enriching their founders and shareholders at the expense of the general public, and that municipal enterprises are alone able to stand between these monopolists and the townspeople, securing to the latter the full benefit of the corporate investments and giving them, through their representatives in the council, effective control of them. And they affirm that such undertakings seldom permanently increase the burden of rates, and where they do they confer such benefits upon the town as add greatly to the general wealth of the community.

It is not our intention to enter the lists on behalf of either of the parties whose views we have endeavored impartially to state. The correct view, it appears to us, lies midway between those who assert that all municipal trading is wrong in principle and those who would municipalize all the common needs of life. There is a general consensus of opinion that the supply of water, lighting, and locomotive power within the borough should be under the effective control of the ratepayers; to which may be fairly added slaughterhouses, bath and wash houses, lodging houses, market halls, and, in the case of seaports, docks, piers, and quays. These are matters intimately bound up with the commercial prosperity of the town and the health of the inhabitants, and therefore may well come under the management of the town council.

But no general rule can be laid down as to what enterprises may be engaged in with advantage to a town and what may not; the particular circumstances of each town must decide the question for themselves. Several towns, such as Doncaster, Chester, and Lincoln, are the owners of race courses, from which they derive a

considerable income—sufficient, in the case of the first-named town, to enable the corporation to do away with the borough rate; but probably if other towns were to attempt to follow their example, the result would be disastrous.

Health and pleasure resorts may and do profitably invest money in schemes which will attract the visitor and pleasure seeker. Thus, the corporation of Bath owns the hot springs, nearly all the cold springs, the famous Roman baths, and the pump rooms, and has recently extended the grand pump room with a Roman promenade at a cost of \$150,000; Bournemouth owns the winter gardens and golf links, and provides an excellent orchestra of more than local fame; Harrogate draws a large revenue as proprietor of the royal baths and springs, the winter garden and theater, and the royal spa concert rooms and gardens; Leamington owns its celebrated baths and pump room, which are patronized by thousands who frequent this charming town every year; Southport draws about \$17,500 a year from pleasure boats on the lakes in the marine parks, and considerable receipts from such amusements on the beach as a switchback railway, bicycle railways, tobogganing, and the "aërial flight;" and Brighton is the owner of the royal pavilion and the local aquarium.

Many towns engage in farming, in connection with their sewage farms, with profitable results. Nottingham has a large sewage farm some miles out of the town which yields from the annual sale of live stock about \$20,000 and from butter and milk about \$12,500. Wolverhampton draws an income of about \$32,500 yearly from its sewage farm, which practically covers the expense of its maintenance; and Birmingham sells from its sewage farm stock, wool, crops, and milk to the value of over \$125,000 a year.

The corporation of Colchester owns the famous Colne oyster fishery, from which some 3,000,000 oysters are taken every season to delight the palates of epicures. Bradford has a hotel in connection with the public markets, under the direct control of the corporation, and Plymouth owns the Royal Hotel and the adjoining theater.

Birkenhead [in Cheshire, opposite Liverpool, on the Mersey River] is the owner of the ferry rights over the Mersey to Liverpool, and maintains a fleet of 12 steamers, the profits from which relieve the rates to the extent of about \$50,000 yearly.

York owns the Foss Canal and also a fleet of steam tugs for the towage of vessels between Hull and York. Manchester is the principal shareholder in the Manchester Ship Canal, having invested \$25,000,000 in that great undertaking. The corporation of Bradford has erected a "conditioning house" for the testing of wool, yarns, and cloth, fitted up with the best machinery for the testing of woollen goods, the income from which is more than sufficient to meet the expenditure; a plant has been laid down for the manufacture of paving slabs from the clinker produced by the furnaces of the refuse destructors, which, mixed with cement and faced with granite chippings, forms an excellent material for this purpose; and a large quantity of valuable fish manure is made from fish refuse received at the depot.

Liverpool, like Bradford, makes an artificial stone from the clinker produced by the furnaces of the destructors, which is being used in the construction of model dwellings for the working classes. Leicester also utilizes its clinker in the manufacture of paving slabs, and maintains three sewage farms, which yield an income of about \$110,000 annually.

In Bristol, practically all the work connected with the street and cleansing department is done by the corporation's own workmen, and in the corporation workshops carts and barrows are built and repaired, harness is made and mended, horses are shod, and a large variety of work is done for other departments. Glasgow has long led the way in municipal development, and its communal services to-day touch the interests and affect the well-being of a greater number of citizens than do

similar institutions in other cities. More than 10,000 persons are employed in the various departments of the Glasgow corporation, and all the common services have been municipalized, except the cemeteries.

No fewer than 228 towns own public market places and halls within their boundaries, producing an aggregate annual income of \$2,760,000 and a net profit in relief of taxes of \$418,910. Liverpool's markets bring in an average yearly income of \$160,095, and, when all outgoings have been paid, there remains a sum of \$72,860 to be applied in aid of the taxpayer's burdens. Manchester owns 15 markets which contribute an annual average sum of \$75,000 in aid of rates. The ratepayers of Nottingham, Leicester, and Blackburn benefit in each town to the extent of \$20,000 annually from their market places, while the markets of Norwich yield \$15,850, of Derby \$13,730, of Oldham \$13,045, of Warrington \$12,000, of Bolton \$11,815, of Wolverhampton \$10,995, and of Swansea \$10,110 toward the rates, not to mention many others below \$10,100.

Even the most determined opponent of municipal trading must admit the success that has attended the municipalization of tramways. In every instance where the control of a tramway system has been transferred from a company to the local authorities, the change has led to a better service, cheaper fares, increased traffic, and larger profits, while the position of the employees has been greatly improved in regard to pay and the hours of labor. We may take Liverpool as a type of many others. In 1897, the last year of the old company's management, the number of passengers carried was 38,409,084, the receipts were \$1,453,715, and the mileage was 6,013,182 miles. In 1901, under the management of the corporation, the passengers had increased to 101,108,710, the receipts to \$2,341,915, and the mileage to 10,970,063. After providing for interest, sinking fund, depreciation, and all working expenses, the sum of \$88,035 was transferred in aid of the rates for the year 1901. In the following year the sum thus transferred was \$125,825. The Leeds tramways, which were taken over by the city council in 1884, have for the last four years contributed an annual average sum of \$204,380 in relief of rates, and the Hull tramways yield about \$115,000 annually for the same purpose. The net annual profits earned by the tramways owned by corporations, and available for relief of taxation, are considerably over \$500,000 and are increasing with great rapidity.

The supply of electricity is a department of municipal enterprise which, in some towns, owing to many costly experiments, has not yet reached a paying stage, but in others a considerable profit is being made. Liverpool last year was able to make a contribution to the general rate of \$60,145 from this department; and Manchester showed a net profit for the year ending March 31, 1902, of \$38,175. Eight other English towns make an annual net profit, after paying interest and sinking fund, of over \$5,000—namely, Leeds, \$18,365; Nottingham, \$18,125; Sheffield, \$16,255; Bolton, \$10,330; Southport, \$7,730; Leicester, \$7,090; Lancaster, \$5,215; and Chester, \$5,085. These examples would seem to show that, except where special and temporary circumstances exist, it is quite possible to make this department of municipal enterprise as profitable as any other.

One hundred and ninety-three towns have their own water supply, yielding an annual average net profit of \$450,640. This does not seem a large return on a capital of \$250,000,000; but it should be stated that the gross yearly profits are over \$10,000,000, out of which an average sum of \$7,600,820 is paid as interest on borrowed capital and \$1,975,990 toward repayment of principal, both of which sums would go to swell the dividends of joint-stock companies if the supplies were in their hands. To obtain a higher rate of profit on the water supply would necessitate a curtailment of the quantity supplied, which obviously would not be conducive to the health and cleanliness of the inhabitants.

Gas is a much more profitable commodity than water, as the 99 towns that own gas works make an average net profit yearly of \$1,974,125 in all. The rates of these towns are thus relieved to a very considerable extent, the Manchester gas works contributing no less than \$250,000 to this object; Salford, \$121,625; Nottingham, \$120,900; Birmingham, \$114,065; Leicester, \$108,725; and Bolton, \$104,660.

JAMES BOYLE,
Consul.

LIVERPOOL, *April 9, 1903.*

THE RELATION OF IRON CONSUMPTION TO NATIONAL PROSPERITY.

It is a recognized principle in modern economics that the prosperity of a people can be quite accurately inferred from its per capita consumption of iron. Especially is this true of a nation in which, like Germany, Great Britain, or the United States, a wide range of manufacturing industries has been developed. The exhibit is rendered still more striking and instructive when, besides the rate of consumption, the production of iron per capita is shown in the comparison. An exceedingly interesting object lesson of this kind is furnished by the statistics of iron consumption and production in Germany from 1871, the first year of the Empire, down to and including 1902. The table is as follows:

Year.	Consumption per capita.		Production per capita.	
	Kilograms.	Pounds.	Kilograms.	Pounds.
1871	47.5	104.7	40.8	89.9
1872	59.3	130	43.9	96.7
1873	72.3	159.4	55.1	121.4
1874	52.1	114.8	46.9	103.4
1876	41.7	91.9	43.6	96.1
1879	35.1	77.3	50.5	111.3
1880	39.3	86.6	61.2	134.9
1882	51.5	113.5	74.8	164.9
1886	47.3	104.2	75.3	166
1888	66.6	146.8	90	198.4
1890	81.7	180.1	97.1	214
1892	74.3	163.8	98.8	217.8
1895	71.9	158.5	105.1	231.7
1896	90.1	198.6	121.4	267.6
1897	104.1	229.5	129.8	286.1
1898	105.8	233.2	136.6	301.1
1899	128.4	283.1	150.8	332.4
1900	131.7	290.3	152.1	335.3
1901	90.3	199.1	139.5	307.5
1902	76.6	168.8	149.6	329.8

Nothing could show more vividly the rapid development of German industrial prosperity from 1895, the climax in 1900, the rapid subsequent decline in consumption, but the maintenance of production through increased exports. No fact in the present economic

situation is more significant than that of every 2 pounds of iron made in Germany in 1902, only 1 pound was actually consumed at home; the other was either stored for future use or exported.

BERLIN, *April 24, 1903.*

FRANK H. MASON,
Consul-General.

COMMERCIAL TREATIES IN EUROPE.

The next year is likely to bring about important changes in the commercial relations of most of the European states. Of the commercial treaties which the States composing the triple alliance concluded with each other at the beginning of the last decade (which provide not only for certain reductions of tariff duties, but also for inalterability of the customs tariffs of those States during the entire period that these treaties may remain in force), one will expire on the 31st of December of the present year and the other two will be continued by sufferance for an indefinite period. Each of these treaties contains the stipulations that it shall remain in full force until December 31, 1903, and that one year's notice shall be necessary to terminate it. As Austria-Hungary gave such notice to Italy last December, the treaty between these two States will terminate at the close of the present year. Germany's new tariff legislation renders the continuance of her treaties in their present form impossible, and the termination of her agreements with Austria-Hungary and Italy is therefore only a question of time. New treaties will doubtless take the place of the old ones, but they will bear evidence of a remarkable shifting of interests, due to agrarian ascendancy.

This change is also certain to involve the fate of a number of other commercial conventions and agreements into which Germany, Austria-Hungary, and Italy have entered.

The most important of these treaties and agreements are those between—

Austria-Hungary and Belgium, of December 6, 1891.

Austria-Hungary and Germany, of December 6, 1891.

Austria-Hungary and Italy, of December 6, 1891.

Austria-Hungary and Switzerland, of December 10, 1891.

Austria-Hungary and Russia, of May 6 (18), 1894.

Germany and Belgium, of December 6, 1891.

Germany and Italy, of December 6, 1891.

Germany and Switzerland, of December 10, 1891.

Germany and Russia, of January 29 (February 10), 1894.

Italy and Switzerland, of April 19, 1892.

France and Belgium, of May 15 (30), 1892.

France and Great Britain, of February 6, 1893.

France and Russia, of June 5 (17), 1893.

France and Switzerland, of June 25, 1895.

Belgium and Switzerland, of July 3, 1889.

Summary

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Treaties regulating the commerce and navigation between Great Britain and the principal continental states, except France, were already in existence. Commercial treaties also existed between the several Balkan states and Austria-Hungary, as well as Russia. The only nations which did not seem to be able to come to a mutual understanding in commercial matters were France and Italy. Finally, December 21, 1898, after a disastrous tariff war of eleven years' duration, these countries also found a *modus vivendi*.

The accompanying table shows the most important tariff treaties and agreements of the several commercial nations of Europe.

As regards the general tariff legislation of these several states, its stability is a noteworthy feature, but existing treaty obligations make it in the main a matter of course. There are in force in Belgium the customs law of June 8, 1887; in Germany, the tariff of July 15, 1879, with a few subsequent amendments; in France, the maximum and minimum tariff of January 11, 1892, slightly amended by the act of August 15, 1895; in Italy, the tariff of July 14, 1887; in Austria-Hungary, the customs laws of May 25, 1882, and May 21, 1887; in Russia, the tariff law of June 11 (23), 1891, which was amended by an order of the Council of State, approved June 1 (13), 1893 (this order decreed maximum and minimum duties and fixed those of the tariff in force as the latter); and in Switzerland, the tariff of April 10, 1891.*

FRED'K W. HOSSFELD,
Consul.

TRIESTE, April 24, 1903.

NEW SUIT PROTECTOR AGAINST LIVE WIRES.

Professor Artemieff, director of the Electrotechnical Institute at Kief, Russia, has invented a suit which is an effective protection against live wires. It was intended at first for the use of students in his laboratory, but proved to be so practical that the well-known firm of Siemens & Halske, Charlottenburg, Berlin, has taken up its manufacture and sale.

Professor Artemieff has sent me the following information on the subject. The accompanying illustration is from Siemens & Halske.

The suit consists of a closely woven network of metal fibers, lined with linen, which completely covers the body from head to foot. It is worn outside of the ordinary clothing. The mask which covers the

* The rates of these tariff laws appear in full in Special Consular Reports, Tariffs of Foreign Countries.



NEW SUIT PROTECTOR AGAINST LIVE WIRES.

head does not materially influence the eyesight. The outfit is especially valuable to those whose business is the mending of live wires. Experiments show that 200,000 volts make no impression on either the wearer or the outfit. It must be understood, however, that in these experiments the poles were not connected.

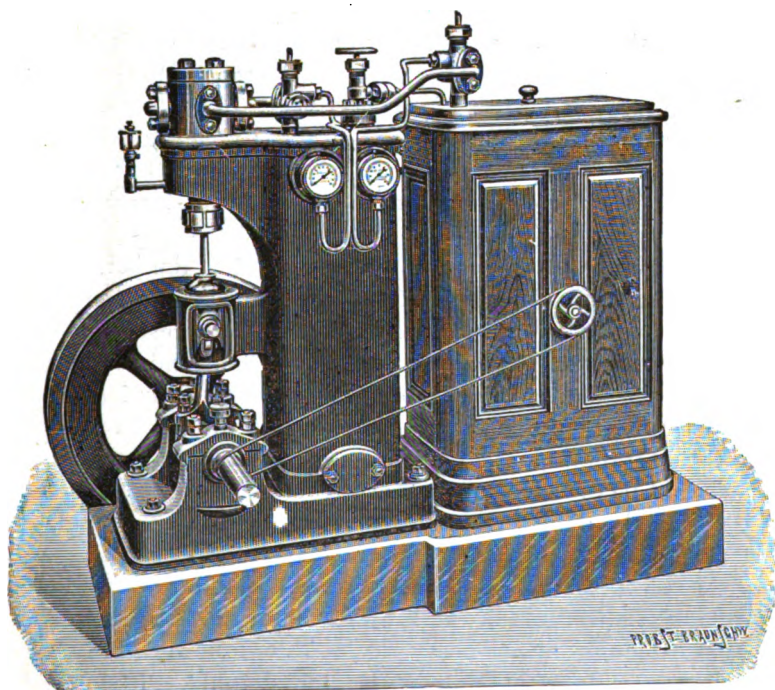
The illustration shows the suit in use. Those who desire a scientific explanation should apply to either of the above addresses.

EIBENSTOCK, *May 4, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

NEW MACHINE FOR MANUFACTURING ICE IN GERMANY.

The accompanying illustration shows a new ice machine brought on the market recently by the firm of Wegelin & Hübner, in Halle, Germany. The compressor consists of a vertical suction pump, which is connected with an iron casklke condenser by a hollow tube. The compressor draws the ammonia steam from the ice generator



and presses it into the tubes of the condenser, where it is cooled by water which circulates around it. The tubes of the ice generator are submerged in a solution of salt and chlorcalcium. The process is simple, practical, and is especially adapted for use in tropical climates. The machine is so arranged that it may be propelled by gas, petroleum, or electricity.

EIBENSTOCK, *April 22, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

AUSTRIAN PRIZES FOR DESIGNS FOR RAISING CANAL BOATS.

In connection with the construction of the Danube-March-Oder Canal, a new problem of engineering presents itself for solution. It is how to raise and lower canal boats in crossing the watershed between Prerau (Moravia), the head of the March basin, and Alten-dorf, the head of the Oder basin. The elevation to be overcome is no less than 39.9 meters, or about 131 feet. It is, of course, desired to raise and lower the boats with the least possible consumption of water and at the smallest possible expense. The Austrian Minister of Commerce has offered prizes of 100,000, 75,000, and 50,000 crowns (\$20,300, \$15,225, and \$10,150), respectively, for the three best designs to be submitted. The method of accomplishing the object is to be left entirely to the competitors, who are also at liberty to submit proposals for the construction of the works in accordance with their designs.

If the execution of the work is not intrusted to the person whose design is adopted, a premium of 200,000 crowns (\$40,600) will be given to him, in addition to the prize, when the successful operation of the contrivance has been demonstrated. Plans and drawings, together with a sealed envelope containing the name and address of the competitor, should be filed in the office of the Minister of Commerce not later than March 31, 1904. Any offer for constructing the works should be inclosed in the same envelope.

Copies of the minister's announcement, with full supplementary information for competitors, will be furnished gratis by the commissioner for the construction of water ways at Vienna and by the various provincial governors of the Empire; or in the United States, by the Austro-Hungarian embassy at Washington and the Austro-Hungarian consulates at New York, Philadelphia, Pittsburg, Chicago, and San Francisco.

FRED'K W. HOSSFELD,

TRIESTE, *May 8, 1903.*

Consul.

INDUSTRIAL CENSUS OF BOHEMIA.

As a result of many years' agitation of the subject by commercial interests, the Government of Austria-Hungary, early in 1902, made provision for an elaborate industrial census. This work in Bohemia was assigned to the official chambers of commerce, namely, at Prague, Reichenberg, Eger, Budweis, and Pilsen, each of which governs a specified territory. The work in the Reichenberg district

has just been completed, at a cost of \$21,518—1,040 enumerators having been employed. The full report is not yet available, but a summary of results has been given out by the president of the chamber. Aside from its statistical value, the summary discloses industrial conditions perhaps not generally appreciated. The territory embraces 3,120,131 acres and has a population slightly in excess of 2,006,000. When it is considered that Reichenberg, with a population of only 50,000, is the largest town, it is seen that the distribution of inhabitants throughout the district must be general. Within this area are scattered 116,257 independent manufacturing, commercial, trade, and productive concerns, employing 460,327 persons, exclusive of 105,867 employed in "home industry." To this latter class belong 15,544 engaged in various processes of glass finishing; 6,769 in wood, wood-carving, and wicker work; 69,211 in the textile trade; and 8,775 in the manufacture of dress ornaments and flowers. These "home" workers live in the little villages, which stretch almost contiguously along the banks of mountain streams and in the wider valleys, and the women and girls, in great baskets slung on their backs, carry the raw and finished goods between home and factory over steep mountain paths, which in winter are covered with snow and ice. The factories themselves are widely scattered, compelled to seek water where it can be found in the mountains and valleys, with apparent disregard of transportation facilities. Thus, around an isolated factory will grow up a little village, the inhabitants of which, directly or indirectly, are dependent upon the work it furnishes, and whose children grow up with no other expectation than that of taking their parents' places as factory hands. This process develops families of specialists, whose method of life is primitive and whose very existence depends upon the prosperity of their particular factory, for the high altitude and the character of climate and soil make agriculture but a poor supplement, even most vegetable supplies being imported either from Germany or southern Bohemia.

Of the 116,257 industries and occupations, 74,548 are manufacturing concerns, 41,062 trade and professional, and 647 engaged in original production, such as mining, farming, etc. The following are the principal groups: Preparation of spinning material, 194 concerns; spinning and weaving wool and half wool, 363; spinning and weaving cotton, 1,206; linen mills, 483; hosiery factories, 598; refining of yarns, 639; manufactories of glass, glass stones, and clay products, 4,583; metal industries, 6,413; building concerns, 3,217; chemical and drug trade, 606; provision dealers, 10,859. In the textile division there are 1,925,136 spindles and 77,991 mechanical looms—in wool, 187,767 spindles; cotton, 1,456,880; flax, 262,593.

Altogether, 5,712 manufacturing plants using power utilize but 216,177 horsepower, and of these 1,087 in the textile branch utilize 100,730 horsepower. Engaged in these power concerns are 218,219 persons, of whom 78,199 are females. In the textile branch but 59,920 of 123,338 employees are males. Reichenberg, with its immediate suburbs, maintains its industrial supremacy with 7,882 manufacturing and trade concerns.

REICHENBERG, *April 2, 1903.*

S. C. MCFARLAND,
Consul.

UNITED STATES MACHINERY IN FRANCE.

The United States holds the lead in competing with foreign and domestic manufacturers of machinery here. By this I do not mean to say that American exporters have secured all the trade possible for them to obtain in this district; on the contrary, much more remains to be gained than has already been won. This may be best accomplished by studying the local needs, habits, prejudices, and even caprices which I shall mention in detail in this report.

The greatest drawback to the development of our trade in machinery in Europe is due to the effort of American exporters to induce these people to purchase engines which are not fitted to their needs or to which they are wholly unaccustomed. This does not imply that no new or improved invention should be put upon the French market; but in introducing these it is necessary to clearly demonstrate their utility.

Agricultural machinery.—American thrashers, reapers, binders, and mowers have a monopoly of this trade, and they are becoming more popular each year. French plows are universally employed, the ground to be worked being of such a nature that the plowman's share of the labor is comparatively light. English horserakes continue to crowd out the American implement. This is due to the fact that the French farmers do not like the wire tines on the American machine. Frenchmen are not wholly pleased with the English machine—it is too heavy and cumbersome. This is a trade worth securing, and American manufacturers can win it by substituting the cast-steel tine for the one generally used at home.

Bicycles.—Three years ago all high-grade wheels sold in this section were of American manufacture, with but two exceptions. At that time the outlook was very favorable, but now all is changed. This is due probably to two things: First, the combine of dealers in American wheels in France has shut out competition of the various makes and has maintained prices that are entirely disproportionate to the cost of the same wheels in the United States and, in almost

every case, much dearer than the best wheels of French make; second, because the agents lack that generosity and frankness in business which encourages the sale of wheels. I can cite instances where purchasers, at La Rochelle, of one of our best-known bicycles had so much trouble in having certain defects remedied that it was only after weeks of correspondence and complaint, and shipments of wheels to Paris several times, that they were able to enjoy a spin on their American machines. Two instances in particular, in which the purchasers were officials of high rank, practically destroyed our trade at La Rochelle. The choice of an agent for France is all important in this business, and he should not be of the "few sales, big profits" kind. An American machine which sells for \$50 at home should sell for less than \$90 in France.

Steam engines and boilers.—American manufacturers, to judge from prices submitted in several instances, are able to sell stationary engines and boilers here at from 30 to 35 per cent below the prices asked for French machinery of the same nature; this includes transport and duty, but no local commissions. Slight changes in valves and other parts might enhance the value of engines of this kind, once they are known locally.

Fire engines.—There are scores of towns in Southwestern France of more than 6,000 inhabitants which have totally inadequate fire-fighting appliances. Most of them have inefficient hand pumps; and while large fires are not frequent, yet they are important enough to create a need for steam pumps. An enterprising American firm would probably take many orders by exhibiting from town to town an automobile steam fire engine of moderate price. As the cities are near together the experiment should not be costly. Many thousands of these people have never seen such an engine at work and are consequently unable to judge of its real worth as a fire fighter.

Locomotives.—The first experiment with American railway engines began in 1900, when the administration of the State Railway Company put 20 Baldwin machines into operation. Long before it was possible to arrive at any definite judgment regarding the utility and economy of these engines on French roads all kinds of unfavorable criticism appeared in various French journals, some ridiculing their lofty structure, others imagining what would happen if they left the rails, and still others claiming that, in spite of their low first cost, they were not economical, as the boilers lost much steam and were continually in the repair shop. The director of the State Railway Company, in answer to my inquiry, said that these engines have been giving satisfactory results and go no oftener to the repair shop than do other machines.

I called upon the officials of three French railway companies and they agreed that they had found the American locomotives satisfactory and as economical—when given all the work they could do—as their French engines. On one thing, however, they all insisted, *i. e.*, that American manufacturers should fashion their products so as to conform to the requirements of the French law.

Almost without exception, changes were made in the American locomotives in order that the various parts might stand in the relation required by French law. In some cases, a redistribution of weight on the rails was necessary, and in several instances the grates were not fitted to burn the coal in use upon that particular railway system. These and the other changes made after their arrival in France could be obviated by study on the part of the manufacturer. Any article loses in prestige when a modification is found necessary in the country to which it is exported.

GEORGE H. JACKSON,
Consul.

LA ROCHELLE, *April 24, 1903.*

TUNNEL UNDER THE SEINE.

A work to cost some \$6,000,000 will probably in the near future be begun on the Seine. It is to be a tunnel under the river, either at Tancarville or Quillebeuf. Between Rouen and the sea there is no crossing of the Seine except by boat, a condition that for many years has caused great inconvenience and retarded commercial growth. Moreover, Havre is connected with the rest of France by only one railroad line. The projected tunnel will connect it with Pont-Audemer and hence with the rest of France, giving two diverging lines from Havre—one to the right and one to the left of the Seine.

Last year, the chambers of commerce of Rouen and Havre furnished \$3,860 to an eminent French engineer, Jean Berlier—the constructor of the Clichy and Concorde tunnels under the Seine at Paris—to make preliminary investigations as to the feasibility of the work. Mr. Berlier has recently published an exhaustive pamphlet with map, drawings, etc., showing the result of his investigations and giving an outline of the manner in which the work should be accomplished. He advocates a double tunnel, the total cost of which he estimates at 30,600,000 francs (\$5,905,800), and so feasible is its construction considered that he asks no payment in carrying out the work until one-fourth of it is finished.

The construction will be in "fonte," or cast, wherever there is pressure, the distance between the top of the metallic tube and the

lowest part of the river being 5.5 meters (5.9 yards). The interior diameter of each tube will be 5.4 meters (5.8 yards), leaving room for a small platform at each side for travelers, in case of accident or stoppage. Mr. Berlier proposes to accomplish the work in three years with the following plant: Nine groups of boilers of 200 horsepower each, being 1,800 horsepower; 8 compressing engines of 150 horsepower, capable of giving 4 kilograms (8.8 pounds) of pressure, being 1,200 horsepower; 2 compressing engines of 25 horsepower, of 20 kilograms (44 pounds) of pressure, and serving as injectors, being 50 horsepower; 3 dynamos of 100 horsepower, being 300 horsepower; 2 rolling bridges for the shafts; 1 derrick of 20-ton power on the bank of the river; 4 draining pumps; 1 fire pump; 5 electric tractors for the excavations; and sufficient cables, rails, etc., for the exterior. The cost of all this is estimated at 1,200,000 francs (\$231,600).

The address of Mr. Jean Berlier is 35 rue Boissy-d'Anglas, Paris, and the title of his pamphlet is *Mémoire pour le Tunnel Sous-Fluvial de la Ligne de Pont-Audemer au Havre*. This "Mémoire" sells for 2 francs (38.6 cents), not including postage.*

THORNWELL HAYNES,

ROUEN, *April 29, 1903.*

Consul.

AMERICAN COAL IN WESTERN FRANCE.

I would call the attention of our coal-exporting firms to the fact that no American coal has reached this market for more than a year. It seems that those who have heretofore thought of Nantes as a permanent market for our coal no longer regard it favorably. The fact is that the few efforts that have been made to gain a foothold for American coal in this part of France have not been made intelligently. A good market for American coal can be found here, if the proper methods are pursued at the outset. If any of our coal exporters are interested in entering this field, I would be glad to furnish them with certain facts and practical suggestions which, if considered and followed, would open the market to them. The French and English miners at present controlling the market have entered into a trust for mutual protection, and have recently advanced prices about 20 per cent.

BENJ. H. RIDGELY,

NANTES, *April 22, 1903.*

Consul.

* Plans and sections of the projected work, transmitted by the consul, are filed for reference in the Bureau of Foreign Commerce.

AMERICAN CORN AT HAVRE.

There has been much complaint expressed by the grain importers of Havre in regard to the condition in which American corn, shipped from Galveston and New Orleans, has been received at this port. In every cargo since the season opened there has been unusual damage from heating and fermentation. The following extract from a letter which I received recently from one of the largest local dealers in American grain will indicate the general tenor of letters which other receivers of American corn have written me:

In the United States this year the grain does not appear to have been loaded in as dry a condition as usual, which would explain a slight heating of the corn. Some of the steamers, however, have discharged cargoes which were greatly heated, which, in our opinion, was owing to faulty transportation. Sometimes the corn is loaded in the bottom of the holds, and bales of cotton are stowed immediately on top, thus preventing any aëration. Besides, very often no measures are taken to separate the grain from close contact with the engine and boiler room bulkheads. There should be wooden partitions with sufficient air spaces between to insure ventilation and to prevent the heat of the boiler and engine rooms being communicated to the cargo. In some of the steamers the steam pipes for the steering gear pass through the shaft alleys. On such steamers the corn should not be stowed in the after holds. It has been found, when the same kind of grain has been loaded in the different parts of a steamer, that in the forward holds the grain was sound, or nearly so, while in the after holds it was very much damaged. We also know that in some instances the corn was loaded in wet weather, and cotton that had been country damaged by water, either in transit or on the quays at New Orleans, was stowed on top of the corn without any dunnage. This in itself would cause the corn to become greatly heated.

On the other hand, the steamship agents claim that the fact that corn arrives in a damaged condition is not due to any want of preparation for the reception of the grain cargo on the steamers, but to the corn being in a more or less wet condition at the time of shipment. In support of this statement one of the local agents has shown me a copy of a report of an analysis of a sample of damaged corn taken from one of the cargoes of his steamers and made by an expert connected with the testing department of the French agricultural bureau at Paris. In the opinion of the expert the corn was damaged by moisture before being loaded on the vessel.

Whatever may be the reasons assigned for the grain becoming heated, the fact remains that cargoes of American corn which have been received this year have been unsatisfactory to the French purchasers.

The average annual importations of foreign corn into France for the past three years were 14,000,000 bushels, of which the Argentine

Republic furnished an annual average of 4,250,000 bushels, Roumania 3,000,000 bushels, and the United States 2,800,000 bushels. I am assured that if the American corn could be shipped so as to arrive in better condition, the quantity received from the United States would be considerably increased.

In view of the fact that of the enormous crops of corn which are harvested annually in the United States less than 10 per cent is sent abroad, it would seem advisable for our American farmers, grain dealers, grain shippers, etc., to seek new foreign outlets for the sale of their corn and to improve those which already exist.

Considering the shorter ocean voyage necessary to land American corn in European ports as compared with that of its formidable Argentine competitor, there is no doubt that the foreign sales of American corn could be increased, if special attention were paid to the grain being in good shipping condition when loaded, and to seeing that all necessary precautions were taken by the ocean transportation companies to reduce the damage from heating to a minimum.

A. M. THACKARA,

HAVRE, *May 7, 1903.*

Consul.

CAPER CULTURE IN FRANCE.

Having had occasional correspondence on the subject of caper growing and shipping, one of the numerous specialties of this region, it occurs to me that the business might be taken up with success in California, Arizona, and New Mexico, and perhaps in some of the Southern States, where climatic conditions approximate those of Provence. The demand for capers is considerable in Europe, and while the exportations to the United States do not reach an important figure, it seems probable that a market would be created if there were an available domestic supply. Practically the entire American supply of capers is procured in Provence, the declared value of the exports from Marseilles averaging about \$5,000 per annum (fiscal). It is very likely that considerable exports of this merchandise are also included in some general descriptive term, so that the value of capers actually exported is difficult to ascertain.

The caper tree is a bush which is grown in some parts of Spain and in Algeria, as well as in this portion of France. The commercial caper is the flower bud, which is gathered before its development and preserved in vinegar. The tree thrives on chalky soils, on rising ground well exposed to the sun. Poor, dry soils may be utilized, but a good quality of earth brings about better results. The bushes are propagated by the use of cuttings 9.84 inches in length, which are planted in a place selected as most favorable to

their development. Experience proves that it is wiser to plant the cuttings in a soil neither richer nor poorer than the soil into which they are to be permanently transplanted. By adopting this rule not more than 20 per cent of the cuttings survive; but good results are obtained from the successful one-fifth. If the cuttings are planted in a nursery where the soil is rich and moist, they nearly all grow, but when finally transplanted into the poorer soil their growth is arrested immediately and a fresh start may not take place for years.

The ground should be well fertilized and plowed before planting in the springtime. The bushes are placed at a distance of $2\frac{1}{2}$ meters (8 feet 2 inches). They yield a small crop the first year, and in two or three years give a full average crop. Upon the approach of winter every branch is cut down to a length of 20 to 25 centimeters (7.87 to 9.84 inches), and earth is hoed in a heap over the entire bush in order to preserve it as much as possible from the frost. Thus treated, a temperature of 10° to 12° C. below zero leaves no injurious effects. In March, the earth is removed and the branches again cut closely to the trunk, which is left bare. The branches themselves are used as cuttings. At the same time the ground is plowed and manured. As the roots of the bush run straight down into the ground, there is little fear that they may be damaged during the plowing. From time to time the weeds must be taken off, the ground hoed, and the soil kept fresh; but by June or July this work becomes impossible. At this time the bushes are fully grown, so that their branches cover nearly the entire surface of the plantation.

The gathering of the crop generally commences the first week in June, and as the branches continue to grow, and as there is one caper for every leaf, the harvest season continues until September or even October. About the 20th of July the crop is heaviest. The buds are picked by women, who work upon the same bush every five or six days. An effort is made to gather small capers, as the smaller sizes are the best and bring the highest prices. The pickers are paid 25 centimes (5 cents) per kilogram (2.2 pounds), and during the height of the season a competent woman can gather 20 kilograms (44 pounds) per day.

After the capers have been picked, they are placed in trays under a shed, where they are left until they evaporate a certain amount of water which they contain, in order that fermentation may not set in. They are then placed in barrels of vinegar for preservation. A white vinegar of 8° Beaumé is used for this purpose. A 6° vinegar might be employed, but with a stronger vinegar the capers acquire a more satisfactory consistency. Occasionally the brine is flavored with sprigs of tarragon, elder flowers, cloves, and pepper in grains. This is a matter of individual taste and experience.

The capers, having been thus preserved, are next classified, during the winter, by being passed through sieves of different sizes. There are seven classifications, as follows: "Nonpareil" (smallest size), "surfine," "capucine," "capote," "fine," "mi-fine," "commune" (largest size). Having been thus separated, the merchandise is replaced in barrels filled with vinegar and preserved until sold. When prepared for shipment, the capers are washed in vinegar of a standard of 12°, which renders them quite firm, and they are then placed in barrels without vinegar. They support long voyages very satisfactorily, if properly treated before.

The average prices per category and per kilogram of 2.2 pounds are:

Description.	Price.	
	<i>Francs.</i>	<i>Cents.</i>
Nonpareils.....	1.70 to 3.20	32.8 to 61.7
Surfines.....	1.25 to 2.40	24.1 to 46.3
Capucines.....	1.00 to 1.80	19.3 to 34.7
Capotes.....	.80 to 1.40	15.1 to 27
Fine.....	.60 to .70	11.5 to 13.5
Mi-fine.....	.40 to .50	7.7 to 9.6
Commune.....	.30 to .35	5.7 to 6.7

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *April 24, 1903.*

WINE AND FRUIT CROPS IN SOUTHERN FRANCE.

The frosts from April 10 to 20 were of a very serious character and are likely to have a lamentable effect on the business as well as the production of this region.

Wine is not only the most important product of France, but in the southwest outranks in value all other agricultural productions. The commercial enterprises of this region, outside of wine, are nearly all based on some sort of fruit production. Prunes, apricots, peaches, cherries, and vegetables of various kinds are largely exported in their natural state and also constitute an essential element of the thousand varieties of confiture and preserves which, next to wine, are the chief commercial products of this busy city beside the Garonne.

It is estimated that one-half of the vine crop of France is destroyed. The vines had not yet put out their blossom shoots, but the swollen buds, just ready to unfold, were frozen and have largely turned brown and dry. A certain proportion of new buds will come on, but the number depends entirely on the weather conditions which may hereafter prevail.

The commercial importance of such a reduction of the vintage of a single year is greatly modified by the fact that wine is not marketed or consumed as soon as made. Two years and, if it is of good quality, three years must elapse before it comes on the market. The failure of a single crop does not, therefore, produce immediate scarcity. Practically, there are two years' stock now on hand, and should the next crop be one of such profusion as those of 1874 and 1892, which followed other great frosts, the failure of this year's vintage would hardly be felt in the world's markets. There is much more than a normal supply of wines of low degree of alcohol now on hand, not only in France, but also in Italy, Spain, Algeria, etc. It is not certain, therefore, that any permanent augmentation of existing prices is likely to result in the wine trade.

All fruit, with the exception of pears, is said to be absolutely destroyed. The most important consequence of this is the failure of the French prune crop, the destruction of which is reported to be practically complete, and as this follows the poor crop of last year, the country is without any reserve supplies except what may be left of last season's importations from California. Should the failure of this crop be as sweeping as now indicated, it will be a fact of decided interest to California prune growers and dealers.

As the other fruits which are prepared here in large quantities have also been destroyed, thousands of laborers will be thrown out of employment. There will probably be an increased demand for the better qualities of dried apples. There will of necessity be a scarcity of other fruit products which are largely exported to the United States, such as cherries, apricots, etc. Following as this does two years of scarcity of sardines on the French coast, it is very hard on the packing industry of this section.

Cereals and forage plants throughout southwest France are seriously injured. The clover is cut very badly, and the hay crop will be short. The same is said to be true of wheat, rye, and, possibly, oats. The amount of this shortage can not now be estimated.

It is also reported that the walnut crop is seriously injured, but I doubt if it was sufficiently advanced to make the report reliable.

ALBION W. TOURGÉE,

BORDEAUX, *April 24, 1903.*

Consul.

Writing on the same subject, Consul B. H. Ridgely, of Nantes, under date of April 23, 1903, says:

This district is famous for its white wine. The Muscadet is the finest quality, and 90 per cent of the vines producing this wine are estimated to be lost; of the gros plant (the famous vin ordinaire of

the country), 50 per cent is lost; and of the early crop of petits pois, it is estimated that $33\frac{1}{3}$ per cent is lost. The whole crop of the early potatoes also is lost. Of the fruits, it is stated that 90 per cent of the peaches, 98 per cent of apricots, and 80 per cent of plums are lost; while the apples, pears, and cherries have suffered to some extent, but much less.

It seems to me that the opportunity for exporting fresh fruits, such as apples, peaches, and pears, from the United States to France during the approaching summer is well worth considering. Fresh fruits are relatively dear in France, and owing to the largely decreased production prices will be almost prohibitive. If our fruits could be landed here in fairly good condition, there would undoubtedly be a big demand for them at good prices. The duties on fresh fruits are small, from 58* to 97 cents per 100 kilograms (220 pounds), and there are no other entry charges of importance. If our fruit handlers would send representatives to Paris at once, they could easily make arrangements with the big fruit houses to handle several cargoes.

There will also be an enlarged opening for our dried fruits—prunes, apples, etc. I would call the attention of our dried-fruit exporters to the fact that several reliable commission merchants have asked me to put them into communication with exporters who would like to ship direct from the United States to Nantes.

OLIVES AND OLIVE OIL IN FRANCE.

The information here presented has been obtained in response to comprehensive questions from the Los Angeles Olive Growers' Association. As some of the same problems have also been laid before me by various California olive growers, a few general observations may not be amiss before taking up the Los Angeles interrogatories in detail. The principal difficulty in California, so all my informants tell me, is an inability to preserve for an indefinite period an olive capable of successfully meeting foreign competition. One correspondent says:

We are unable to preserve ripe olives for more than six months and the green olives for more than one year. As to olive oil, we are seriously handicapped in the competition met in the low-priced adulterated oils, labeled "pure," from foreign countries.

Another correspondent states that, whereas the Spanish olive is firm and hard—the stone adhering closely to the flesh—the French olive, on the contrary, is easily detachable. This correspondent has

* 58 cents per 100 kilograms for apples and pears; for all other fresh fruits, 97 cents.

an evident predilection for the Spanish fruit, but his trouble also is inability to keep his own product for any length of time, and also to maintain an even color throughout the package. Rancidity of both fruit and oil appears to be the common American enemy to be located and dislodged, and I have an idea that to the same error can be attributed partial failure in both cases.

M. Anastay, of Lourmourin, Vaucluse, has written a short report, in which he says:

To make good oil, olives should be picked by hand, during fine weather. The color of the fruit passes from green, which darkens to a reddish brown and then to black, as maturity approaches. The degree of maturity should be governed by the degree of fruitiness desired in the oil. Green olives approaching maturity yield an oil that is bitter and piquant, and has an accentuated fruitiness; riper olives give a sweeter oil; finally, in the case of over-ripe olives, a slight fermentation having already taken place, a rancid oil is produced. These are the three points to be emphasized in the manufacture of olive oil:

1. The bitter piquant flavor following immediately upon manufacture. This is the aftertaste which remains in the throat and irritates it. It is not unlike the astringency of new wine; it hides the fruity flavor, and diminishes after a number of months.

2. This fruity flavor persists after the disappearance of the bitterness.

3. The strong taste of oil in which rancidity has commenced increases with time, and both taste and odor are disagreeable.

It follows that to produce an oil combining perfume, finesse, and sweetness the product must be stored until the strong flavor has disappeared, the fruity flavor remaining dominant. To do this, it is necessary to choose fruit that is but slightly ripe, and to place upon the market an oil that has been manufactured six or eight months.

M. P. d'Aygalières, professor of agriculture at Oraison, Basses-Alpes, to whom I wish to render acknowledgments for much information, says that "the fruit should be gathered by hand in September or October, when it has acquired its entire development."

I half suspect that in California the pickers have not fully learned to determine that critical moment when the olive destined for the table has "acquired its entire development" and yet is completely green. I should not be surprised to learn that the fruit is picked too soon, when its bitter, astringent qualities are at their height. This being true, the prolongation of the potash bath, which removes the astringency, would be necessary. A prolonged bath would naturally soften the fruit and diminish its resistant qualities materially, the astringency disappearing at the cost of all the evils mentioned by my correspondents.

In my annual report, printed in *Commercial Relations*, 1901, Vol. II, page 200, I discussed briefly the adulteration of olive oil. In my report contained in *ADVANCE SHEETS* No. 1265, I discussed some facts respecting olive oil; in another report (*ADVANCE SHEETS* No. 1311) I supplied information respecting the extraction of oil

by chemical process; and in ADVANCE SHEETS No. 1361 I gave some details in regard to the manufacture of olive oil, and more particularly methods of filtering it and preparing it for the market after manufacture. My correspondents in California might advantageously read these reports, as I shall not herein be able to fully repeat myself.

While I have no means of knowing the varieties of the olive trees grown in California, my impression is that they have been selected mainly in the hope of securing a very large fruit, suitable for pickling—the “Queen” olive, as it is called in Spain. This variety is less highly regarded in France. Messrs. De Grully and Viala, in the *Annales de l'Ecole d'Agriculture de Montpellier*, have analyzed all the known varieties of the olive tree, and from their report I take the notes immediately following:

In Provence, and particularly in the environs of Aix—which is noted for its fine oil—the “Pigale” is largely cultivated. It has the double advantage of furnishing a first-class fruit suitable for pickling and yielding an oil both abundant and of high grade. The “Verdale” is grown principally in Languedoc, and practically the entire crop is preserved for table use. The “Rouget” is a very vigorous tree, capable of resisting severe winters, and there exist orchards in Languedoc known to have an age of 200 years. The oil is abundant, but the quality only fair. “Picholine” is one of the most famous of the French olive trees and is grown more especially in Provence. Usually, the fruits of this tree are picked green and pickled. The “Sayern” is another Provençal tree grown exclusively for the oil—of excellent quality—which it yields in abundant quantity. The crop varies little from year to year. The “Pendoulier” is a very vigorous variety, which lives for many years, and is pronounced to be the most beautiful known in France. In spite of its very high qualities, this tree is found rarely in large orchards, although trees may be found here and there, wherever the olive grows. The oil of this variety is of the very highest grade. Another variety highly spoken of is the “Cailletier,” which is found in the region of Nice and Liguria. In the latter place, it tends to replace all the other varieties, because of its general superiority. The oil is abundant and fine, and is very frequently employed in the manufacture of perfumery.

The olive, which possesses in its early stages a deep-green tint, becomes paler as it develops, and upon the approach of full maturity becomes reddish, then violet red, and finally black. The maturity is not complete until the fruit has taken the darkest tint compatible with its variety. Until complete maturity, the fruit grows in weight and size. The oil does not commence to form in the pulp until after the lignification of the kernel. The proportion of oil continues to increase until the complete maturity of the fruit, and is found both in the pulp and in the kernel. There is even a certain proportion of oil in the hard portion of the stone, but the oils of both the kernel and its bony shell are limited in quantity and deteriorate easily; therefore, in the extraction of olive oil, the effort is made not to crush the stones, in order to secure separately the oil from the

pulp. I submit in this connection the analysis made of the average olive by Paparelli:

Paparelli's analysis of the olive.

Portions of fruit.	Entire fruit.	Pit.	Pulp.	Kernel.
Proportion.....			80.5	*19.5
Water	52.6	23	58	27
Oil.....		3.503	27.62	21.606
Organic matter.....		72.067	12.68	50.2
Cinders.....		.53	1.7	1.2

*With pit.

GATHERING THE RIPE OLIVES.

The statement made at the beginning of this report with respect to the period for gathering the fruit is confirmed by M. d'Aygaliers, who says:

The proper time for picking the fruit depends upon whether the crop is to be pressed or preserved green. The fruit to be preserved green should be gathered before it commences to change color—at the moment when, having acquired its full development, it is still green. In France, this moment varies from the end of September until the middle of October. While there seems to be no discussion as to the proper time for gathering fruit to be preserved, this is not true with respect to the time for gathering olives destined for the oil press or to be preserved ripe. Some authorities believe that for satisfactory oil making the olives should have attained their last degree of maturity and should detach themselves from the tree, since they then contain the highest proportion of oil relative to their weight. Others maintain that in gathering the crop thus late—in February, March, and even April—absolutely nothing is gained. The proportion of oil seems to be greater in the former case simply because the olive has diminished in weight by the evaporation of the water which it contains. Experience justifies this conviction. From the point of view of the quantity of oil, there is nothing to be gained in collecting the fruit too late. On the other hand, the riper the fruit the more discolored will be the oil, and the more will it have lost the flavor of the fruit, whereby its value will be depreciated. A late harvest should therefore be opposed wherever the culture is carried on systematically.

In certain cases, even complete maturity should not be waited for. If the fruit is gathered a little earlier, a less abundant quantity of oil is furnished, it is true, but it is finer and possesses the fruity flavor so highly valued.

The burden of evidence thus goes to show that the period when the fruit is gathered influences the fruit in the following manner:

1. Olives picked late yield a white oil of inferior quality.
2. Olives gathered at the precise moment of maturity give a maximum quantity of oil, and the quality is normal.
3. Olives gathered a little before complete maturity produce a fine amber-colored oil, of superior quality, fruity in flavor, but diminished in quantity.

The method of collecting has also an important influence upon the quality of the fruit, and even upon the vigor of the tree itself.

In some countries where the fruit is invariably collected late, there is not, properly speaking, any harvest season. The growers simply wait until the fruit detaches itself, by its own excess of maturity, and it is then gathered. This is the worst of all systems, presenting several disadvantages; the fruit is then solidly fixed upon its stem and is with difficulty detached. Even if the fallen fruit be gathered every day, there is always a certain proportion bruised in the fall, which commences to decay upon the ground; these olives collect particles of damp earth, while others are attacked by insects, so that upon the whole there is a loss both in the quantity and the quality of the oil produced. In other regions the trees are beaten with clubs—a barbarous method in every respect, as it is necessary to defer the gathering of the fruit until it is too ripe, otherwise it would detach itself with too much difficulty, and in any event the use of clubs upon a tree as delicate as the olive is to be deplored. The bark is torn and bruised and becomes susceptible to the attacks of parasites, and in Italy—where this method prevails to a considerable extent—a serious disease of the tree is always more or less prevalent. The fruit itself ferments rapidly and gives an oil of inferior quality.

While it is almost impossible to gather the fruit upon large and untrimmed trees except by the use of clubs, it is considered in France much more advantageous to trim the trees to such a point as to enable the fruit to be gathered by hand.

Hand picking of the fruit is absolutely essential in the case of green olives destined for the table. In Provence the picker carries with him a stepladder and reaches every branch of the tree. The olives are dropped upon a sheet extended upon the ground or, better still, are laid in a basket or in a pocket of the picker's apron. Sunny days should be chosen for the work if possible, and if the fruit is damp when gathered it should be dried. The use of sacks for transporting the fruit is discountenanced, and large baskets are recommended.

Generally speaking, an olive tree of good condition, middle-aged, and properly cared for should produce an average of 30 liters (31.7 quarts) of fruit annually. At 600 grams (21.16 ounces) per liter (1.0567 quarts), the weight of the harvest should be 18 kilograms (39.7 pounds); the proportion of oil furnished by the olives is usually 12 per cent.

When possible, olives destined for the oil press should be carried to the mill immediately after being picked. It is sometimes necessary to wait until the entire crop has been gathered, in which event the fruit must be prevented from entering into fermentation. To do this it should be separated, in a well-ventilated and dry chamber, upon the floor in thin layers. These layers should not exceed 15

centimeters (5.9 inches) in depth. If the preservation before treatment continues some time, the fruit should be turned occasionally, with care. In certain parts of Italy the green olives are placed in a large basin filled with fresh water, which is changed every eight days. The fruit is thus preserved sometimes until the month of May. Before being sent to the mill the olives should be carefully dried.

In less-enlightened regions growers still persist in piling up the fruit and facilitating a slight degree of fermentation under the mistaken theory (the error of which has already been explained) that they thus secure a larger proportion of oil. The quality of the oil is necessarily inferior, having an unpleasant odor and a rancid and disagreeable taste.

THE OLIVE-PRESERVING PROCESS.

The preservation of green olives is an art which has been handed down from the Romans, probably, who called them "colymbades" and preserved them in salt and cooked wine or water sweetened with honey, together with herbs. The modern methods of treatment are all based upon the use of lye. In France the bath of a lye made of wood ashes was introduced by an Italian named Picholini, whose name is now attached to the variety of olive known as the "Picholine." Until his day green olives were lightly crushed and then plunged into fresh water, renewed daily during nine days. Their bitterness disappeared largely during this period, and they were then preserved in salt water. At the present time this method is still largely employed in the case of olives used as condiments. Olives of this kind have a very considerable demand in France, where they are cooked with meats and served in other forms practically unknown in the United States.

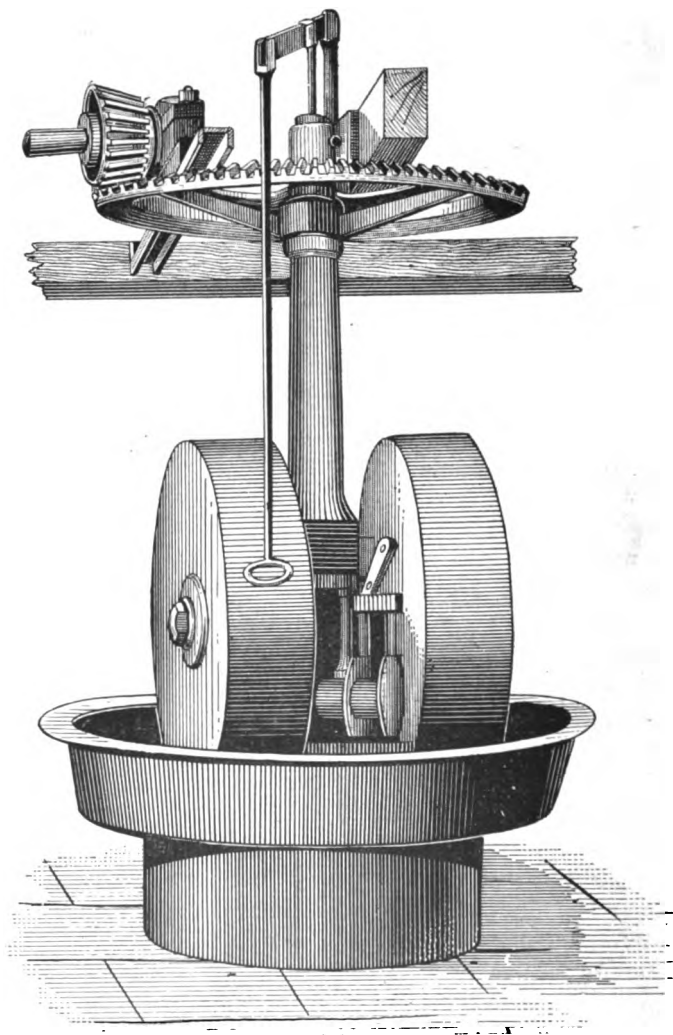
Green olives packed in bottles or barrels for table use are gathered by hand in September or October, when they have acquired their full development, and are sorted in such a manner as to prevent bruising. Fruit that is accidentally bruised becomes rapidly soft and acquires an unpleasant blue-black tint. Every effort is made to preserve the even greenness of the fruit. The selected olives are picked over, all stems and leaves being removed, and they are then plunged into the potash bath. The preparation of this bath differs in different localities. Generally speaking, per kilogram (2.2 pounds) of fruit, the composition is 1 kilogram of ashes, 25 to 30 grams (0.88 to 1.05 ounces) of lime, and sufficient water to cover the olives. The bath is agitated occasionally. As a rule, grapevine ashes are used to make the bath in this region. When the fruit is being preserved in commercial quantities, the wood ashes are

replaced by crystals of carbonate of soda. M. d'Aygalières recommends the following proportions: For 50 gallons (110.2 pounds) of olives, 2 kilograms (4.4 pounds) of ordinary carbonate of soda should be dissolved, preferably in warm water, in order to hasten the operation. Into this solution are broken 2 kilograms (4.4 pounds) of lime and 8 kilograms (17.6 pounds) of fine wood ashes. Water should be added until the composition develops 8° by hydrometer test. Into this preparation the olives are plunged, and there they remain for five or six hours. The duration of this bath depends naturally upon the degree of concentration of the liquid and varies with the size of the fruit. The fruit should be withdrawn when it appears to have been permeated to the center and when the flesh is easily detachable from the kernel. If the bath is unnecessarily prolonged the pulp softens and the quality becomes inferior. The preservation of olives is now such an ordinary matter in this country that the grocers in the olive country all keep on hand a stock of what is called "olive water," which is a simple 6° solution of caustic soda, of which 5 liters (5.3 quarts) are purchased for each 10 kilograms (2.2 pounds) of fruit to be prepared.

The fruit, being retired from the bath, is washed carefully and then placed in fresh water, which is renewed morning and night. At the end of three or four days, when this water seems clear, the olives are withdrawn, placed in jars, bottles, or barrels, and covered with brine. The brine is made by dissolving in warm water 60 grams (2.11 ounces) of salt in 800 grams (28.2 ounces) of water for 1 kilogram (2.2 pounds) of olives. The brine should develop 5° by hydrometer test. Although the usage of aromatic herbs is now of less importance than formerly, it is customary to place orange peel, laurel leaves, cloves, fennel, etc., in this brine. Every family and every firm has its own favorite perfumes, and American packers must ascertain by experience what their trade requires in this respect. The aromatic brine is poured cold upon the fruit, which remains in perfect condition, retaining every good quality.

Considerable quantities of olives, instead of being preserved in brine, are freed from their kernels and stuffed with chopped anchovies, capers, and truffles, and then placed in oil. There is a very satisfactory demand for this product. While every variety of olive is susceptible to the treatment herein described, the preference is given in this country to the types with thick flesh and relatively small kernel. The "Lucques," "Picholine," "Verdale" and "Amel-laux" are the best-known varieties for this purpose in France. The conservation of ripe, black olives is much simpler than that of green olives. The fruit, having been picked over and freed from stems and leaves, is placed in a basin containing fine salt, in which it is

stirred once or twice every day. Under the influence of salt, the olive loses a colored juice which carries with it the bitterness of the fruit. To hasten the operation, the flesh of each olive is sometimes pricked with a pin. At the end of a number of days the fruit is washed, dried superficially, and then preserved in barrels or jars in a cool place.



OLIVE CRUSHER MANUFACTURED BY COQ FILS ET SIMON.

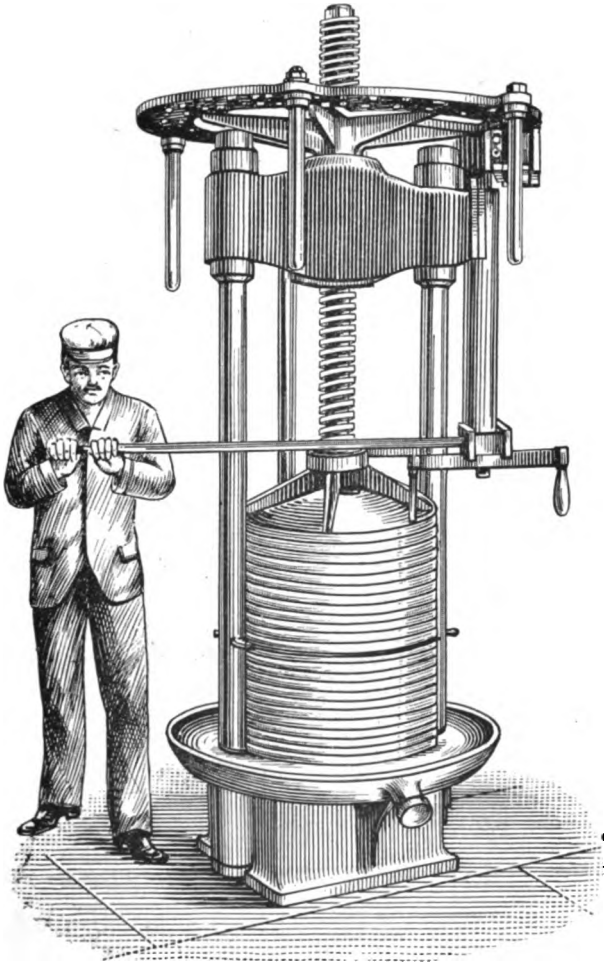
Black olives are covered with no liquid and are frequently offered for sale in this city in large baskets, through which the air circulates freely. Before being served, they are usually dipped in a little oil.

The essential precaution seems to be to refrain from touching preserved olives with the fingers, more particularly the green olives.

These should be manipulated with a strainer or a perforated wooden spoon.

EXTRACTION OF OLIVE OIL.

It is admitted to-day that the olive contains four different kinds of oil, which may be extracted from the (1) outer pellicle, (2) the pulp, (3) the stone, and (4) the kernel within. In practice, it is impossible to separate the oil of the pellicle from that of the pulp, and

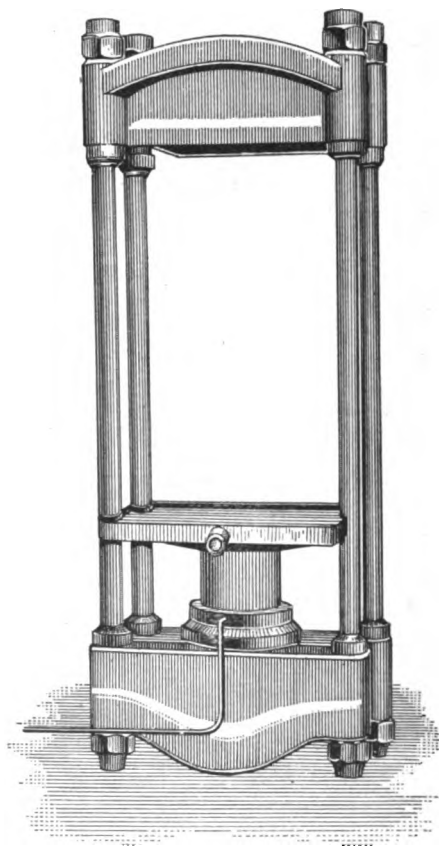


HAND PRESS MANUFACTURED BY COQ FILS ET SIMON.

no attempt is made to do so. The oil of the stone is very limited in quantity, thick, and insipid in taste; it becomes rancid rapidly, when its taste and odor are both disagreeable. The oil of the kernel is yellow and limpid, and, according to M. Paparelli, has a pronounced odor like cinnamon. The poor quality of the oil contained

in the shell and kernel makes it necessary to avoid crushing these latter, except for industrial oils.

The most advantageous moment for gathering olives intended for the manufacture of oil has already been discussed. The first operation is that of crushing the fruit, now ordinarily done with devices, types of which are here illustrated. The stone wheels revolving in the huge pans are followed by steel scrapers, which should



HYDRAULIC PRESS MANUFACTURED BY COQ FILS ET SIMON.

break up the crust of the paste and assure the completeness of the operation. The vital defect of all the crushers provided with vertical stones is that they fracture the kernels. The continuous crushers, with horizontal stones or with cylinders, avoid this objection, and their use is becoming more general in mills of moderate size. The extraction of the oil becomes easier in proportion as the crushing is thoroughly carried out, and the temptation in manufacturing upon a large scale is to neglect the item of quality and crush the whole

fruit at one time. If a fine comestible oil is to be obtained, it is decidedly preferable to subject the olives to two separate crushings, the first of which attacks the pulp only.

The paste produced by the first operation is stored in stone troughs, from which it is packed in round mats with a central opening called, in this country, "scourtins." These courtins should be soaked for several hours, at least, in fresh running water before being used, in order to remove their peculiar odor. From twenty-two to thirty of these courtins are then piled in the press, one upon the other, with a disk of strong linen on top of each one. The use of these linen disks considerably facilitates the flowing of the oil. The pile of mats having been adjusted in the press, the first turn of the screw is given and the oil which exudes under the first light pressure takes the name of "virgin" oil, and is the finest fruit of the olive from every point of view. It is carefully set aside and commands a high price. As the pressure increases, a certain quantity of water escapes with the oil, which must be decanted at the conclusion of the operation. In large establishments it is comparatively seldom that the true virgin oil is set aside. It is more usual to apply a fairly strong pressure, the virgin oils of different degrees of fineness being mixed and subsequently, by processes of filtration and decantation, made ready for the market. Manufacturers desiring to cater to a high-class trade and having a large supply of fruit might profitably establish a distinction between the real virgin oil, which flows from the fruit with practically no admixture of water, and the commercial virgin oil, which has to be separated from considerable quantities of water after its extraction.

When the virgin oil ceases to flow from the press, the courtins are removed, their contents broken up, and into each one is poured from 4 to 5 quarts of boiling water. Again the pile is established in the press and under the favoring action of the hot water the oil exudes in considerable quantities. This mixture of water and oil is then gathered in tubs and transferred to huge basins, into which more boiling water is poured, in order to hasten the elevation of the oil to the surface. Both the virgin oil and this oil resulting from second pressure having risen to the surface of the water, the vessels in which they are contained are skimmed and the oils therefrom carefully set aside under their proper designations. The second-pressure oil is of an ordinary comestible quality. Sometimes the operation is repeated a third time and from the third pressure an oil of still lower grade is obtained.

The olive cake remaining in the courtins is now removed and under the name of olive "grignons" is treated by several processes until no vestige of oil remains. The treatment of the grignons is

comparatively seldom undertaken by the comestible-oil manufacturers in France, who prefer to sell them to large manufacturers.

The water which has emerged from the olives during the several pressings, from which the pressed oil has been skimmed, still retains a certain percentage of oil, which requires time to mount to the surface. This water is discharged into large cement basins, called "enfers" in Provence. In time the particles of oil in suspension rise to the surface and are collected. The quality of this product is very inferior and it is used generally for industrial purposes, although when the crop is short there is a temptation to mix it with the pressed oil, an operation which requires much experience.

TREATMENT OF OLIVE-OIL CAKE.

By the application of pressure, an average of 12 per cent of the weight of the fruit is removed in the form of oil. The grignons, or oil cake, remaining represent half of the weight of the natural fruit and still contain from 8 to 11 per cent of oil. As this oil is used for industrial purposes only, the tendency is becoming more and more pronounced to sell the grignons to important Marseilles firms which are prepared to withdraw the last vestiges by chemical process. This sulphate-of-carbon process has been fully described in my report printed in ADVANCE SHEETS No. 1311. To be successfully carried on, the business should be undertaken on a large scale. Before the chemical process was thoroughly understood, and to a large extent even now, the oil cakes, or grignons, were treated in paste mills, the form of procedure being very simple. In the olive country there is usually one paste mill to every six or ten press mills. In the paste mills the oil cake is dumped into a large basin built of stone, in which turns another vertical stone, not unlike the crushers used in the press mills, but much heavier and larger. A current of water is turned into the basin during the movement of the stone and a thick paste is formed. This paste is discharged into another basin, into which a regular current of water flows and at the bottom of which an agitator is in constant movement. The agitation separates the paste. The heavy particles formed by the débris of the kernels are precipitated to the bottom of the basin, while the lighter particles are carried off by the water and escape from an overflow, to be collected in a series of basins, which succeed each other at different elevations and have siphon communication with each other. By this arrangement the liquid from the middle of one basin is discharged into the bottom of the next lower basin. The particles most rich in oil float to the surface of these basins, where they are collected with a large skimmer. The débris of the kernels, which has fallen to the bottom of the first basin by its own weight,

is eventually collected and burned. The particles, rich in oil, which have been skimmed from the various basins are poured into a boiler with the water taken from the last of the basins, as even this water contains particles of oil. This liquid is boiled for a number of hours, and when the white color of the escaping steam and the thickness of the paste indicate that the process has been continued sufficiently long, the contents of the boilers are poured into scourtins similar to those used in an ordinary oil press, and they are subjected to pressure by ordinary means. The oil flows out and is gathered into tubs, from which it is subsequently skimmed. It is estimated that the oil cake resulting from the treatment of 600 kilograms (1,322.7 pounds) of ordinary olives, upon being manipulated in a paste mill such as is here described, will yield from 8 to 10 liters (8.4 to 10.5 quarts) of oil. This oil is deep in color, thick, and is used for industrial purposes. The pulp remaining in the scourtins of the paste mill still contains above 10 per cent of its own weight in oil, and it may be sold to manufacturers of oil by chemical process or used for feeding purposes.

The oil extracted by the sulphate-of-carbon process has always a disagreeable taste and odor. This may be minimized by agitation with from 10 to 12 per cent of alcohol. After a period of repose, the oil is decanted, having been relieved of its odor. The alcohol is then distilled, rectified, and can be again used.

CLARIFICATION AND FILTRATION PROCESSES.

The pressed oils are always thick and heavy, and are very frequently sold in that state to the refiners, who know the trade and have facilities for finally packing the product in cans or bottles and reaching the ultimate consumer. It is probably true that patience, frequent decantation, and careful filtration will produce a comestible oil of the highest type, but manufacturers operating upon a large scale in many cases find it advantageous to assist filtration by the use of acids and alkalies. The clarification is commenced, and to a large extent completed, by simple repose. The liquid is drawn into huge jars, of a form which I have never seen in the United States, or into tin reservoirs and then decanted a number of times. If this is done with care, there is no reason why the resultant oil should not be absolutely clear, limpid, and merchantable. The heavy matter precipitated contains oil and is of commercial value.

Oil destined for foreign markets should certainly be filtered after having been decanted. Methods of filtration are fully discussed in my report printed in ADVANCE SHEETS No. 1361, wherein I described paper and cotton filtering devices.

The complete clarification of comestible oil results from the use

of citric or tannic acid, but resort to these methods is unusual unless the material is inferior in grade. A solution of tannic acid is prepared as follows: Two kilograms (4.4 pounds) of ground oak bark are placed for two or three days in 10 liters (10.6 quarts) of water. The bark must be frequently stirred and the liquid filtered before being used. If citric acid is desired, the juice of twelve ordinary lemons should be mixed with an equal quantity of water. This liquid should also be filtered before being used. Either acid solution is poured very slowly into the oil, which in the meantime is agitated with a small osier broom. At the end of twenty-four hours the acid will have completed its work. The limpid oil mounts to the surface and the impurities are precipitated. The oil is decanted and prepared for the market.

The industrial oils are purified by the use of sulphuric acid. The process consists in the agitation of the oil, into which has been poured 2 per cent of its weight of sulphuric acid at 66° C. and a quantity of water. The mixture is allowed to repose, and is then decanted and filtered by ordinary processes. If the oil be heated to 60° or 70° C., the proportion of sulphuric acid may be reduced to as little as one-half of 1 per cent. If industrial oils are to be purified by the use of potash or soda, the rule is to pour into the oil a weak alkaline lye, the liquid being then vigorously mixed. After repose the liquid forms in three strata—the alkaline solution appears at the bottom, the clarified oil at the top, and in the middle is a stratum in emulsion. The upper layer is removed, and to the middle layer is added another quantity of the alkaline solution, the product being again beaten and allowed to repose, whereupon it forms three strata, as before. The operation is repeated until the bottom layer is but slightly troubled. The oil is then decanted and filtered, after repose.

The mode of purification depends somewhat upon the ultimate use of the oil. Those oils clarified by the use of alkalies are more useful for lubricating purposes than those which have been treated with acids. The latter are always more or less acid, and are more liable to attack the metal.

However well the work of clarification may be executed, olive oil will always in time leave a deposit upon the bottom of the receptacle, and, to prevent this precipitated matter from affecting the quality, occasional decantations are always necessary. These decantations should always be undertaken, if possible, when the temperature is mild and the weather fine—in autumn or spring. When the barometer is low, the precipitated matter manifests a disposition to mount toward the surface and trouble the liquid. Abandoned to itself without precautions, the best of olive oil will become rancid. This

alteration is due to the absorption of oxygen by the liquid. The amount of absorption depends largely upon the degree of contact with the air. It is to be remarked, furthermore, that olive oil is a very delicate product and absorbs very readily the odor of any object placed in its proximity. Once acquired, these odors can never be wholly removed. It is of the highest importance, then, that the oil shall be stored in a cool, dry, and thoroughly ventilated chamber and sheltered from any sudden variation of temperature. A northern exposure is recommended for an oil cellar.

In the good old days, French olive oil was always stored in the huge earthenware jars, even now seen in many of the retail oil shops, about 4 feet tall and somewhat the shape of an egg. Over the mouths of these jars is usually spread a clean piece of linen, over which is the cover proper of the jar. Nowadays, the less fragile tin reservoirs are preferred. Whatever be the receptacle in which the oil is stored, absolute cleanliness is necessary. Once emptied, these receptacles must be cleaned with lye in order that every trace of oil may be removed. In this region, before refilling the jars which have contained oil, good housewives are in the habit of rubbing the inner surface with a pippin which has been cut in two. It is thought that the oil absorbs the light and agreeable perfume.

Wooden barrels should be used only for the shipment of olive oil in large quantities; the wood communicates a disagreeable taste which can not be removed. The oil shipped from Marseilles for comestible purposes almost invariably goes forward either in bottles or in tin cans. Zinc and copper as recipients are absolutely proscribed.

CLASSIFICATION AND USES OF OIL AND CAKE.

Under modern methods of manufacture, every vestige of oil is removed from the fruit, and the residue of the pulp, as it comes from the chemical reaction plants, has no value except for fertilizing the soil or for use as fuel. If the manufacture is not carried on to this extent, the oil cakes, as discharged from the presses, are useful for fattening hogs, although not sufficient when used alone for that purpose. The animals are very fond of this feed. To be used as fodder, the oil cake must be served while it is still fresh and sweet. Pigs eat it willingly in almost any condition, but sheep reject it after rancidity has set in. As a rule, the oil cake is broken into water, into which crushed figs are also mixed.

The comestible olive oils are divided into two general classes—the first, or virgin, oils resulting from the first or lightest pressure applied to the cold pulp, and the second category consisting of oils resulting from the second application of pressure to heated

materials. According to the degree of pressure, these two classes of oils are subdivided and thus designated:

Virgin oils: Extra, surfine, fine, and courante.

Ordinary oil: Mi-fine, ordinaire, and mangeable (eatable).

The industrial oils are plainly designated, according to the method by which they have been produced, and have many uses in the industries. In Europe olive oil is used for lubricating purposes in preference to lard oil, and the very finest quality of the comestible oil is required in the watch and clock making industries. The best virgin oil is sometimes relieved of the mucilaginous matter which it contains, and then has an increased value in these very delicate mechanical arts. The virgin oil of Montpellier, made doubly valuable for this purpose by age, has for many years been famous among watchmakers, and under the designation of "sweet oil" every watchmaker in the United States has a small stock of this highly treasured pure oil.

The most notable use of industrial oil is for the purpose of soap making. Olive soap is absolutely essential in the woolen and silk manufacturing trades, and the buyers of the soap exercise every precaution to assure themselves of the delivery of an absolutely pure product. The oil being nonsiccative, the product does not break or warp the threads; hence its value. For toilet purposes no daintier article is conceivable than the pure lettuce-colored olive-oil soap; but, as it foams less freely under the hand than the ordinary types of soap, the average consumer prefers the latter. It is a fact, however, that a pound of olive-oil soap will long outlast a pound of other soap, when subjected to identical uses, and manufacturers who make a specialty of it assure me that its nonfoaming qualities detract not at all from its cleansing properties. In Holland the bakers use olive-oil soap, in some manner unfamiliar to me, in baking their bread.

The high-grade comestible oils play an important part in medicine. In the treatment of skin diseases they are used as ointments. Olive oil forms the basis of all medicinal oils and is sometimes prescribed as a laxative.

The idea that any considerable quantity of cotton oil is re-exported to America as olive oil is erroneous. Perhaps some American importers find it advantageous to mix their oils, but probably very few, as most of the European oil is forwarded in bottles or cans, ready for consumption. The exports of olive oil to the United States in 1902 were valued at \$2,335,109, not including foots (sometimes invoiced as sulphur oil, or soap stock), but including industrial oil. The industrial oils are bought by manufacturers of long experience, who guarantee their purchases by the application of tests. We may assume, then, that about \$1,200,000 worth of edible oil is bought

annually in the United States. Therefore, if we also assume—a most improbable hypothesis—that these oils contain 25 per cent of cotton oil, we have accounted for cotton oil to the value of merely \$300,000—a mere drop in the bucket as compared with the value of our cotton-oil exports. Marseilles alone has, in certain years, imported \$3,000,000 worth of cotton oil. This shows how absurd is the popular delusion that our cotton oil makes two journeys across the Atlantic.

THE OLIVE CROP OF CALIFORNIA.

One of my correspondents says that in 1902 olive picking was prolonged for such a long time in California that not over 10 per cent of the preceding crop, which had yielded over 200,000 gallons of edible oil, was realized. This correspondent has noted some of my recent observations on the subject of olive-oil foots, and he adds that “growers in the State of California know very little about olive-oil foots, or the way of manufacturing the same.”

If 90 per cent of the California olive crop was lost last year, the waste of valuable material was most deplorable. While labor conditions may have prevented the gathering of the fruit in proper season to produce comestible oil, there was nothing to prevent the olives from being collected as they dropped of their own weight from the trees, to be afterwards treated for the production of industrial oils, a process which could have been undertaken very economically and with profit to the growers. The degree of rancidity contained in the oil would not have affected its value for some purposes. Soap makers, for example, are particularly desirous of obtaining what are called here oils “tournantes,” or, in other words, oils which have been left during several years in large cement basins. The soap makers claim that these oils tournantes enter into a perfect state of emulsion more rapidly than any others.

The Olive Growers' Association also inquires what use is made of the “amurca,” or “bitter liquid expressed with the oil from the fresh olive.” In France the “amurque” is not precisely the liquid expressed from the olive with the oil, but is the thick, pulpy material which settles in the bottom of the receptacle. The water from which the oil is skimmed is simply water and has no value whatever, but the amurque, or settlings, are carefully saved and sold to soap manufacturers. According to the degree of fatty acid which they contain, the settlings fetch the market price. In the soap boilers the grease forms an emulsion, while the residue settles in the bottom of the receptacle. The term “olive-oil foots” is used in Marseilles to distinguish the thick olive oil produced by the sulphate-of-carbon process.

My Los Angeles correspondents further inquire the extent to which olive oil is adulterated and the names of the adulterants.

From time to time I have discussed this subject, and now have little to add. The oil shipped to the United States is not adulterated, in my opinion, to the extent popularly supposed. The oils commonly sold in Europe for table use are very frequently mixed with other vegetable oils, and no mystery is made about the matter. The open claim is set up that in many regions, especially those distant from the oil-producing country, popular taste demands an oil less fruity than that of pure olive oil, and that by means of carefully proportioned compositions many consumers have been found for vegetable oils who would otherwise refrain altogether from using them. Packers are thus able to utilize the strong olive oils from Spain, minimizing their bad qualities by the admixture of neutral oils of the peanut or other seed. Lovers of olive oil, who consider a well-made olive oil the most palatable and in all respects the most desirable oil known to commerce, instead of approving this practice, are disposed to feel that the demand for the neutral mixed oils is largely due to the carelessness of olive-oil manufacturers and packers themselves, who, in their desire to produce a large proportion of comestible oil, have in many cases sent to market as virgin oil merchandise which has been subjected to excessive pressure and which, not having been properly refined, has become rancid and unpleasant before reaching the consumer. In my own experience, I have received a number of criticisms of comestible oils which I fully believe to have been pure olive oils and which were so rancid upon reaching the consumer, or so unpleasant to the eye, that the purchasers really thought them adulterated products.

The manufacturers in California have every possible interest in maintaining a high standard for their wares, since an immense demand can be created in the United States by the sale of good merchandise at reasonable prices and of a quality which will impress itself favorably upon the public. At the present time olive oil may be classed among the luxuries. Our domestic manufacturers have also to recall that while the edible product packed in bottles and cans is dutiable at the rate of 50 cents per gallon and at the rate of 40 cents per gallon if packed in barrels, the low-grade oils for industrial purposes are admitted free. A domestic supply of first-class oil will without doubt result in time in the upbuilding of a very large fish-preserving industry, in which the Pacific coast will have much direct interest. Within the last few weeks the French Chamber of Commerce of Montreal, in commenting upon the growth of the American sardine-packing business, has remarked that the French packers have nothing to fear at present from this competition, because the Americans are now obliged to preserve their small fish in cotton-seed oil, while the French manufacturers use olive oil for the same purpose.

I submit herewith tables showing the exports of preserved olives and of olive oil to the United States from all parts of the world during the fiscal year ended June 30, 1902. It appears from these tables that Spain is supplying substantially all the olives in brine imported into the United States. This is very likely due in large degree to the abundance in Spain of the olives of extraordinary size, known in the United States as "Queen" olives. The French consuming public does not manifest any particular desire for fruit of unusual dimensions. Under the head of olive oil, Spain—though by all odds the largest producing country in the world—follows both France and Italy in the value of its exports, a circumstance directly due to the existence of the same troubles as those confronting the oil manufacturers in California. Southern Spanish oil is imported in very large quantities into France, where the errors of the original manufacturers are corrected and the product sold at perhaps double its original price. In general, the ancient Kingdom of Aragon is the only region in Spain where high-class edible oil is produced.

While I have endeavored to take up all the branches of this subject laid before me, it is quite possible that I have not conveyed a clear idea to my readers in many respects, and if any manufacturers wishing additional information will take the pains to forward to me carefully prepared questions, I will endeavor to obtain for them the facts desired.

ROBERT P. SKINNER,

MARSEILLES, March 28, 1903.

Consul-General.

Exports of olive oil to the United States in 1902.

Origin.	Value.	Origin.	Value.
Spain:		Italy—Continued.	
Bacelona.....	\$1,474.82	Reggio.....	\$231.20
Malaga	339,967.97	Rome	1,049.55
Total.....	341,442.79	San Remo.....	33,844.67
France:		Sorrento	35,352.14
Algiers.....	372.40	Trapani.....	480.30
Bordeaux	454,437.34	Total.....	1,041,277.61
Cannes.....	47,410.57	Greece and Turkey:	
Marseilles.....	396,472.00	Athens.....	635.95
Nice.....	41,626.11	Constantinople.....	468.16
Total.....	940,318.42	Corfu	29.10
Italy:		Haifa	681.15
Bari.....	36,159.10	Patras	1,092.19
Castellamare di Stabia.....	7,521.79	Piræus	8,068.35
Catania	2,278.38	Total.....	10,974.90
Florence	10,594.00	Portugal:	
Genoa.....	140,342.77	Lisbon	483.88
Girgenti	2,438.53	Oporto	163.04
Leghorn	623,552.97	Total.....	646.92
Milan	1,718.50	Austria (Trieste).....	449.16
Messina	57,063.26	Grand total.....	2,335,109.80
Naples	35,317.85		
Palermo.....	53,332.00		

Exports of olives to the United States in 1901.

Origin.	Value.	Origin.	Value.
Cadiz	\$4,917.39	Palermo	\$2,820.00
Catania	4,511.10	Patras	18,163.87
Constantinople.....	232.58	Piræus.....	7 761.65
Genoa.....	2,206.59	Seville.....	714,853.18
Haifa	201.70	Trieste.....	2,176.33
Huelva.....	567.41	Total.....	764,669.26
Malaga	264.50	Porto Rico.....	482.53
Marseilles.....	4,918.34		
Naples.....	1,074.62		

OLIVE GROWING IN SPAIN.

During recent years efforts have been made to improve the quality of the olive oil produced in this country, so as to enable it to compete in foreign markets with the French and Italian oils which are so universally appreciated. Some measure of success has already attended these efforts, and this has encouraged the leading Spanish oil crushers to spend money on improvements in their machinery, with every prospect of a good return.

A few particulars about the production of oil in Spain, and especially the preserving of the olives, may prove of interest to olive growers in California, as it has been found that Spanish olives keep longer and are better preserved than those from that State.

The pickling of green olives is an important branch of industry here. Besides the home consumption, which is large, some 6,000 to 7,500 tons, valued at about \$800,000, are annually exported. The olives are packed either in bottles or kegs. For pickling, the green olives are carefully selected; all those that are in the slightest degree bruised or damaged are rejected, as only the perfect fruit is capable of being preserved. The selected olives are then placed in fresh water to soak for several days, care being taken to frequently change the water; they are then put into the pickling mixture, which is a solution of common salt and soda, the olives being entirely covered. This is the general method adopted, and though some manufacturers may slightly alter the solution used, and add to it certain aromatic substances to flavor the olives, the basis of the preparation is invariably common salt and soda.

Ripe and half-ripe olives are preserved only in small quantities, as there is little demand for them.

As already mentioned, until quite recently little attention has been paid to the method of extracting oil in Spain, and consequently in many parts the most primitive means are still in use.

It is usual for the small grower himself to extract the oil from

the olives grown on his land; and, as he frequently does not own the necessary appliances, he borrows them from the nearest town, paying for their use either money or oil. These machines are of the most primitive description. The olives are first crushed in a mill turned by a horse or bullock; they are then placed in lever presses and the oil thus extracted, boiling water being generally used in the process. These wooden presses, though powerful, are very slow, and it often happens that the olives have to be stored until the presses are available, with the result that fermentation sets in, and this naturally detracts from the quality of the oil. It is said that there are between 3,000 and 4,000 of these presses in Spain. Formerly the pulp remaining in the presses was used as fodder or fuel, but now it is sold and a second extraction of oil is made from it. There are 63 mills in Spain for extracting oil from this pulp.

The largest oil manufacturers, especially those in the province of Catalonia, have been the first to recognize the importance of improving their machinery; the old crushing mills and wooden presses have been replaced by steel cylinders and hydraulic presses, so that not only is a greater yield obtained, but the quality of the oil is better. Nearly all the machinery in use is of Spanish make.

After being extracted, the oil is run into earthenware jars or tin tanks, and, after a certain time, strained so as to separate it from the amurca. It is then poured into deposits to be kept until required, alcohol being sometimes used to keep off the action of the air.

The lower grades of oil, as well as the amurca, are used in the manufacture of common soap.

The following is a copy of the official statistics showing the exports of olive oil during the past two years:

From and to.	1901.		1902.	
	Quantity.	Value.	Quantity.	Value.
<i>From—</i>	<i>Tons.</i>		<i>Tons.</i>	
Southern ports.....	11,535	\$1,647,923	40,269	\$5,752,724
Eastern ports.....	8,123	1,160,509	17,363	2,480,488
Other ports.....	145	20,602	277	39,659
<i>To—</i>				
France	3,064	437,724	9,160	1,308,620
Other countries.....	16,739	2,391,307	48,749	6,964,262

JULIUS G. LAY,
Consul-General.

BARCELONA, April 22, 1903.

TRADE NOTES FROM ANDALUSIA.

Jeres is the richest city in Andalusia. The long experience in cultivation of grapes and the skillful mixing of wines has made this place eminent in its special trade. It is the great entrepôt of sherry, with storehouses which contain wine 100 years old, some of it valued at \$10 per quart.

The exports of wine in 1902 amounted to 4,801,492 gallons; in 1901 it was 2,786,607 gallons; in 1900, 6,559,810 gallons. The vintage of 1902 can not be considered an average one, as many of the vineyards have been only recently replanted.

Jeres has several distilleries of spirits and liqueurs, and large cognac stills. Brandy is prepared according to the Charente method, and, being of good quality and cheaper than French cognac, it is rapidly taking the lead in popular consumption.

An important industry of Jeres is cooperage. The oak staves all come from the United States and are mostly shipped from New Orleans. One firm alone last year imported 175,000,000 staves. The hoop iron for casks is mostly purchased in England. The Jeres butts are famous for their solidity and fine appearance and are eagerly sought for by whisky distillers of all countries.

In the vicinity of Jeres several sulphur mines have been uncovered. The ore is rich and gives a high percentage of sulphur after its first fusion; it is said to be better than the Sicilian product. The proprietors of these mines are now seeking capital to exploit their property on a large scale. Buyers from abroad have contracted for large yearly purchases. There is a favorable opening for American capital.

M. M. PRICE,

JERES DE LA FRONTERA, *April 3, 1903.*

Commercial Agent.

TRADE INFORMATION FROM SPAIN.

The vice-consul-general at Barcelona, Mr. H. Henderson Rider, is starting on a visit to the United States with the object of securing business connections that may lead to increasing our trade with this country.

Mr. Rider has lived for the greater part of his life in Spain and is familiar with the trade conditions that obtain here. He intends visiting New York, Philadelphia, Chicago, Washington, and Boston, and his address will be the Murray Hill Hotel, New York, where

he will arrive about the 26th of this month. Any of our manufacturers who may be seeking to extend their export trade to the Spanish market might find it to their advantage to communicate with Mr. Rider, who is able to give practical information.

Firms seriously intending to find a sale for their products in Spain can acquire, from a personal interview with one having a knowledge of the Spanish trade, an insight into the peculiar conditions to be met with in this country.

JULIUS G. LAY,
Consul-General.

BARCELONA, *May 2, 1903.*

PIER AT ALMERIA, SPAIN.

The Alquife Mines and Railway Company, Limited, is constructing a pier at the east end of the harbor of Almeria, 450 feet outside of and parallel to the Levant mole.

This pier will be used exclusively for loading iron ore and will be the largest of the kind on the coast of Spain and probably on the Mediterranean. The contract price is \$500,000, and the pier will be ready for use next January. The contractors are Alexander Finlay & Co., Limited, Motherwell, Scotland.

The present method of loading iron ore in Almeria is both costly and laborious. The ore is brought by rail and deposited in the station yard; thence it is carted to the mole, and after another handling the boats are loaded. The distance from the railroad yard to the dock, where most of the ore is placed on board vessels, is about a mile. One company loads from lighters.

The total length of the Alquife pier when completed will be 1,800 feet. The first 240 feet of the pier is carried on an earthwork embankment, with retaining walls on each side. For the next 600 feet there is a viaduct, consisting of eight masonry arches and three steel-work spans, one crossing a low, level siding and two passing over streets. The railway is then carried onto a viaduct (with seven steel towers and eight spans, each averaging 60 feet), and then onto the pier proper, which is 360 feet long.

The approaches are on a gradient of $2\frac{1}{4}$ per cent, made necessary to reach the pier proper at a level of 61 feet above mean water. The tide is almost neglected, as it has a rise and fall of only 2 feet.

The pier and steel towers are built on steel cylinders, 110 in all, filled with concrete. These cylinders are sunk to such a depth that by means of a little dredging toward the shore end of the pier steamers drawing 26 feet may come alongside with safety. The west breakwater of the harbor protects the pier in a great measure from the westerly winds, while the easterly winds never cause inconvenience.

The chief features of the work are two mineral deposits on the pier proper, capable of holding about 4,000 tons each. These deposits are located on each side of the pier, and the mineral is poured into the steamers by chutes 16 feet long. There are 10 chutes on each side. A vessel of average tonnage can be loaded in two or three hours, whereas by the present method six to nine days are usually consumed. The company plans to export 300,000 tons yearly, and it estimates a saving of \$100,000 a year.

ALMERIA, *March 26, 1903.*

A. E. CARLETON,
Consular Agent.

MALTA IMPORT REGULATIONS.

The following regulations were issued to-day through the medium of the Malta Government Gazette. Of recent years there have been quite large quantities of American vines imported here, and it would be well for those interested to carefully read that portion devoted to vines, in order to avoid annoyance in the future:

1. The importation of the following articles is prohibited:

- (a) Coffee beans or ground coffee, colored with substances injurious to health.
- (b) Rags.
- (c) Susceptible goods, which are not capable of being disinfected, arriving on board infected vessels, vessels without a clean bill of health, or vessels from infected places.
- (d) Hides from any infected ports or vessels, or from any place in which cattle disease exists.
- (e) Vines and fruit packed in vine leaves.

NOTE.—The importation of cuttings or shoots of the American or other vine is prohibited, unless the goods are accompanied by an antiphyllloxeric certificate, in accordance with the Berne International Conference of 1881, signed before a British consular authority, or unless the goods be subjected to examination and disinfection by the inspector of agriculture.

(f) Hoofs and hair of animals, raw silk, wool, human hair, and skins—raw, fresh, or untanned—arriving from infected ports.

(g) Cotton seed arriving from countries in which anthrax is epidemic.

2. The importation of plants, roots, or garden soil from any port in the Mediterranean is prohibited, unless the goods be accompanied by an antiphyllloxeric certificate signed by the proper authority.

* * * * *

4. Cereals imported from infected ports shall be kept for twenty-one days at the lazaretto or other place to be appointed by the collector of customs, and shall be aired under the direction of the quarantine authorities.

MALTA, *April 29, 1903.*

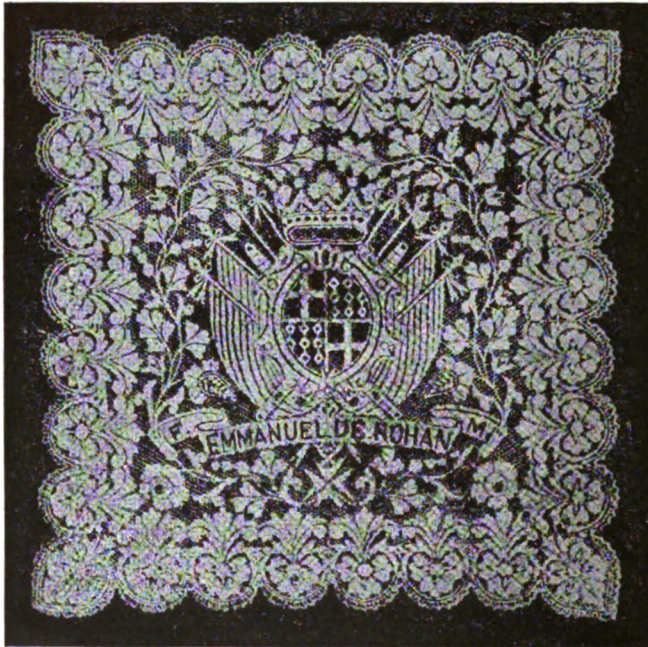
JOHN H. GROUT,
Consul.

MALTESE LACE.

On the continent of Europe and in England, Maltese lace is celebrated, and of late years its fame has been increasing until the quantities exported from these islands have assumed large proportions. Its reputation has even reached the United States, where, until the last year or two, there seems to have been but a dim idea of its beauty and other good qualities. Now, however, judging from inquiries at this office and from the increasing number of invoices presented, Maltese lace bids fair to become popular in the United States. According to a recent work by M. Pierre Verhaegen, lace making is dying out among the European peasantry, particularly in Belgium, where the production is decreasing on account of the small earnings of the women engaged in the industry. It is said that their maximum wage amounts to but 2 francs (39 cents), while inferior work brings but 50 or 60 centimes (9 or 11 cents) per day of eleven working hours. It is also stated that the introduction of lace-working machinery has greatly influenced the low prices paid for labor. Conditions in Malta are different. The greater part of the lace exported is made in the island of Gozo, one of the Maltese group. The population of Gozo is estimated to be about 25,000, of whom 10,286 are women and girls. It is safe to say that at least three-fourths of this number are occupied with lace making. The peasantry of the island of Malta are also more interested in this industry than for many years past. As a result of the increasing demand, there is hardly a family among the poorer classes in the islands that does not produce lace. All of it is handmade, and I do not believe that machinery will ever be introduced here for this purpose. The people have a deeply rooted aversion to labor-saving machinery of all kinds. In many lines of industry the methods in vogue years ago are employed to-day. The art of lace making is handed down from family to family, and often one will find a beautiful design made by only one family. The recent impetus to trade has caused lace making to be taught in the schools. In designs, Malta copies from no one, although the workers are clever in carrying out special designs that may be ordered.

During the past six months more lace has been invoiced to American dry-goods houses than for forty years. There are several firms which are capable of filling large orders. These control the work of many families and supply them with the silk or cotton used in making the lace. Wages are low and the peasant housewife is satisfied if she can add to the family exchequer by employing her

spare time in making lace. As her children grow up she trains them in the art, and it is not long before the female contingent of the family are found to be important factors in the support of the household. Among the articles made may be mentioned handkerchiefs,



MALTESE-LACE PILLOW COVER.

edging, parasol covers, pillow covers, collars, boleros, lamp shades, shawls, mantillas, and even whole skirts. Silk is the chief material used, but of late there has been a demand for cotton lace. An idea of the work may be gained from the accompanying picture.

JOHN H. GROUT,
Consul.

VALLETTA, *April 6, 1903.*

THE SUEZ CANAL.

The traffic passing through the Suez Canal has, up to the present time, been constantly increasing. The transit receipts for 1901 amounted to \$19,515,116.16 (an increase over 1900 of \$1,897,888.52), and were higher than in any previous year since the opening of the route. Whether the canal will, however, continue to receive a growing share of the tonnage of the carrying trade to the Orient is a proposition affected no less by the Canadian, American, and Panama

routes than by the Bagdad, Trans-Caucasian, and Trans-Siberian railway schemes. It is believed that the Suez Canal interests, while naturally concerned about the competition which is springing up in all directions, regard the situation without serious misgivings. Even if the main path to the Orient shall be found to lie across America, the canal has the Persian Gulf, India, West Australia, and the east coast of Africa from Beira (the port of Rhodesia) to Suakin in the Red Sea to guarantee its future trade. To supply the growing needs of these and other East African ports, including Djibouti, Mombasa, Zanzibar, Dar-es-Salaam, etc., the German and Austrian Lloyds are increasing their fleets, and Mr. Chamberlain, in a speech at Mombasa, recently announced the speedy inauguration of another direct line of steamers subsidized by the British Government.

To facilitate rapid transit, the canal has quite recently been supplied with four new light-houses.

In considering the chances of the Suez Canal route, one must not fail to attach due importance to the work of development now being performed in Africa, to which I referred in my report of March 30.

G. BIE RAVNDAL,

BEIRUT, *March 31, 1903.*

Consul.

PROGRESS IN AFRICA.

In former reports,* I described certain new railway undertakings in Africa, particularly in Rhodesia. In connection therewith, it is interesting to read an official statement issued by Secretary Jones, of the British South Africa Company, who recently visited Rhodesia. Mr. Jones speaks with special gratification of the "inexhaustible supply of coal" which the advent of the railway to the Wankie coal fields will soon throw open. He estimates the initial output of the Wankie colliery at 300 tons daily and declares that as soon as the railway makes the transport of heavy machinery possible this will be increased to 1,000 tons. With the exception of the best Welch coal, there is, in Mr. Jones's opinion, no better steam coal in the world than the product of Wankie. With the gold-mining industry of Rhodesia we are more or less familiar; but it is not so well known that copper, zinc, and other mineral deposits abound in that region. Mr. Jones further states that the prospects of agriculture are exceedingly hopeful and that facilities now exist for the employment of modern farm machinery. Rhodesia has already a railway mileage of 2,193 miles. Some day the gigantic forces of

*See ADVANCE SHEETS Nos. 1393 and 1465 (July 16 and October 10, 1902).

Victoria Falls will be used to work the mines and illuminate the towns by electricity. Mr. Jones's report may be tinged with optimism, but it is based on personal observation, and those who have watched developments in Rhodesia for a few years require no urging to subscribe to the views above expressed.

Proceeding to Uganda, one finds that the railway there is practically finished. All the steel viaducts for the road, including 27 bridges from the United States, have been completed, and there only remains the substitution of steel structures for a few small and unimportant temporary bridges. Trading vessels are being placed on Victoria Nyanza. At present, there is a through train twice weekly in each direction between Mombasa and Port Florence.

In Ethiopia and the Sudan, the work of development and exploitation is progressing apace. The treaty recently concluded between King Menelik and the British Government probably means the early construction of the Berber-Suakin Railroad via Kassala (costing some \$15,000,000) and the subsequent extension of the Kassala line southward to Lake Rudolph, where eventually it will form a junction with the Uganda Railway, at the same time marking a long step toward the realization of the Cape-to-Cairo scheme. A few days ago the Djibouti-Harrar Railway was opened; thus Ethiopia is to be exploited from the east. It is, however, not unlikely that a large part of the future trade of this virgin Kingdom will be drawn toward Khartoum. English and American capitalists recently dispatched a corps of engineers to survey a railway from Khartoum to Addis Abeba, and in June an expedition, splendidly equipped by Mr. W. N. McMillan, of St. Louis—acting in cooperation with agents of the British Government—will start for Abyssinia to descend the Blue Nile, in order to test its value as a commercial water way, in view of diverting a portion of the traffic passing via Djibouti.

It is gratifying to observe that American capital is appearing as a factor in the opening up of the Dark Continent. The general impression as to the natural resources of Ethiopia and the Sudan is that they are rich, but undeveloped. With particular reference to the Sudan, the Egyptian Gazette says editorially:

On the whole, although the Sudan will take several more years to develop, there are practically no limits to the possibilities for outside capital which the recovered provinces afford. With great tracts of fertile soil now producing little but jungle and with a water supply only needing scientific storage and distribution to fulfill all requirements, there is no reason why the Sudan should not become one of the world's greatest granaries. All of these and other treasures are placed at the disposal of humanity at large by the extermination of the Dervishes, and British enterprise must have lamentably deteriorated if it hangs back in the coming competition to cater for the wants of 25,000,000 people.

Lord Cromer, in an official communication to his Government, which has been widely published, says:

Sudan trade, properly so called, appears so far to have attracted little or no attention in the United Kingdom. The commercial travelers who have visited the country have, for the most part, been Greeks. Some few have been of other nationalities; none have been British. The Sudan does not at present offer a very extensive market for goods of any description; but the trade is growing in various directions and is unquestionably capable of further extension. It would be a matter of regret if this market were entirely lost to British traders. Unless, however, they bestir themselves betimes, this is not improbably what will happen. * * * Up to the present time, England supplies the Sudan with cotton goods, but when the natives become acquainted with American cotton goods, as will presumably be the case before long, it is not improbable that, under present conditions, this market will also be lost to British trade. The matter is one which would appear to merit the attention of British cotton spinners.

In the Levant, as well as in financial circles in England, there is considerable interest taken in the awakening of the Sudan, whose mining prospects are believed to surpass its agricultural possibilities. It is too early to speak intelligently on this topic. But it is true that the gold fever is attracting both men and money to the regions adjoining Khartoum, and that not only gold but iron, copper, and coal are among the minerals which are believed to exist in paying quantities.

With the completion of the railway from Ethiopia and the Sudan to Suakin, the latter port will acquire new importance. Money is now being spent on improving the harbor accommodations. From Europe to Khartoum, at present, goods have to be transshipped four times—at Alexandria, Luxor, Shellal, and Halfa. By the east coast line from Suakin to Khartoum there will be only one transshipment, which will cause a great saving despite the Suez Canal dues.

G. BIE RAVNDAL,

BEIRUT, *March 30, 1903.*

Consul.

COTTON GOODS FOR SOUTH AFRICA.

The Austrian Commercial Museum announces that cotton prints find an extensive market in South Africa, being used especially by the Boer population for women's and children's wear. The following details are from the publication of the museum:

A strong article, indigo-dyed with small patterns and colors which do not fade in washing, is in greatest demand. The English manufacturers have not succeeded in furnishing a product at the same price as their German and Dutch competitors. Another article in good demand in South Africa, which is in part supplied by Holland and Germany, is "flannelette." This is made in various kinds, either of one color or with stripes of colored yarn, or printed in different patterns.

No 274—03—8

For goods dyed in the piece very light colors must be chosen; if colored yarn is used, it is advisable to have a combination of stripes and checks. Tasteful and original patterns are in favor, but the goods should be heavy and durable. The reason that the German article is more in favor than the English one is on account of its greater width. The price also is of importance, a quality retailing for from 6d. to 8d. (12 to 16 cents) per yard meeting with the largest sales. The largest and most important imports of the South African textile trade are cotton blankets. Seven years ago they came exclusively from England, while to-day Belgium furnishes the largest part.

The blankets are white or colored, smooth, and with a colored border, or white, with colored stripes. They are made of unbleached cotton. The sizes differ according to the market and the wishes of the dealers. It is specially important to send blankets of light and gay colors. They are mostly bought by the Kaffirs, who are to be found in the suburbs of all large and small towns in South Africa.

The female Kaffirs use mostly cotton goods, either of bleached or unbleached yarns, dyed with lively colors or prints of fancy patterns, in various widths. They use them for loin cloths, belts, shawls, turbans, or dresses. Each tribe calls for certain kinds of these goods. The English have studied the market carefully and know the tastes of the various tribes.

The dress of the male Kaffirs is much more simple; it consists of a loin cloth, several ornaments, and the above-mentioned cotton blanket, which the native prefers in white, as he usually paints it himself.

Cheap ready-made clothing finds a sale. The native who comes into the city or settles in the suburbs is forced by law to wear European dress. Oftentimes the native remains in the cities for a short time only, returning after a few weeks to his "kraal." In this case he buys the cheapest kind of clothing; if, however, he intends to remain longer and receives fair wages he buys a better quality. Woven goods and underwear, on account of the climate—which is very changeable—are articles of necessity.

German woven goods, on account of cheapness, find a ready sale. Socks should be seamless and well dyed. Of the more expensive woollen goods, the English are the favorites. In the cheaper kinds, however, it would seem that England can not compete. These are mainly cotton goods, mixed with sheep wool (Angola), well dyed, and of good appearance and finish. Light and lively colors are in demand.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *April 9, 1903.*

NEW RAILWAYS IN SOUTHEAST AFRICA.

The construction of the Portuguese end of the Swaziland Railroad has been authorized; the money has been appropriated by the Lisbon Government and work will commence on June 1. The line has not yet been surveyed, but it will be laid through a well-known country, starting from Matolla, a station 16 miles from Lourenço Marquez, on the Delagoa Bay Railroad, and running in a westerly by southerly direction to the frontier of the Transvaal. That part of the Transvaal that lies just over the border and west of Lourenço Marquez is generally called Swaziland.

I understand that the Transvaal Government has assured the Portuguese Government that this line will be continued from the frontier to Ermelo, a town 160 miles in a straight line from Matolla. It is generally understood that the line will cross the border in the neighborhood of Umbelusi Poort.

From Machadodorp, on the Delagoa Bay Railroad, a private corporation is building a railroad line to Ermelo; and the Central South African Railway conference, at a meeting just concluded (that allotted some \$25,000,000 for railroad extension in the former Boer States), has set aside the sum of £937,000 (\$4,705,905) for the construction and equipment of a line 137 miles long connecting Springs, a station on the outskirts of Johannesburg, with Ermelo. Work on this line is to be immediately commenced.

The old Delagoa Bay Railroad, between Machadodorp and Pretoria, passes through an extensive coal country, and the traffic along this section and to Pretoria and Johannesburg is now so great that the need of an alternate line for general merchandise is strongly felt. The Machadodorp-Ermelo-Springs line will relieve this congestion on the Delagoa Bay Railroad west of Machadodorp, and will give Lourenço Marquez another route to Johannesburg and to the districts adjacent thereto.

The connecting link between Ermelo and Umbelusi Poort will pass directly through the heart of a rich coal district in the eastern part of the Transvaal, or Swaziland. Many known coal properties on this line are situated at a distance of less than 100 miles from Delagoa Bay.

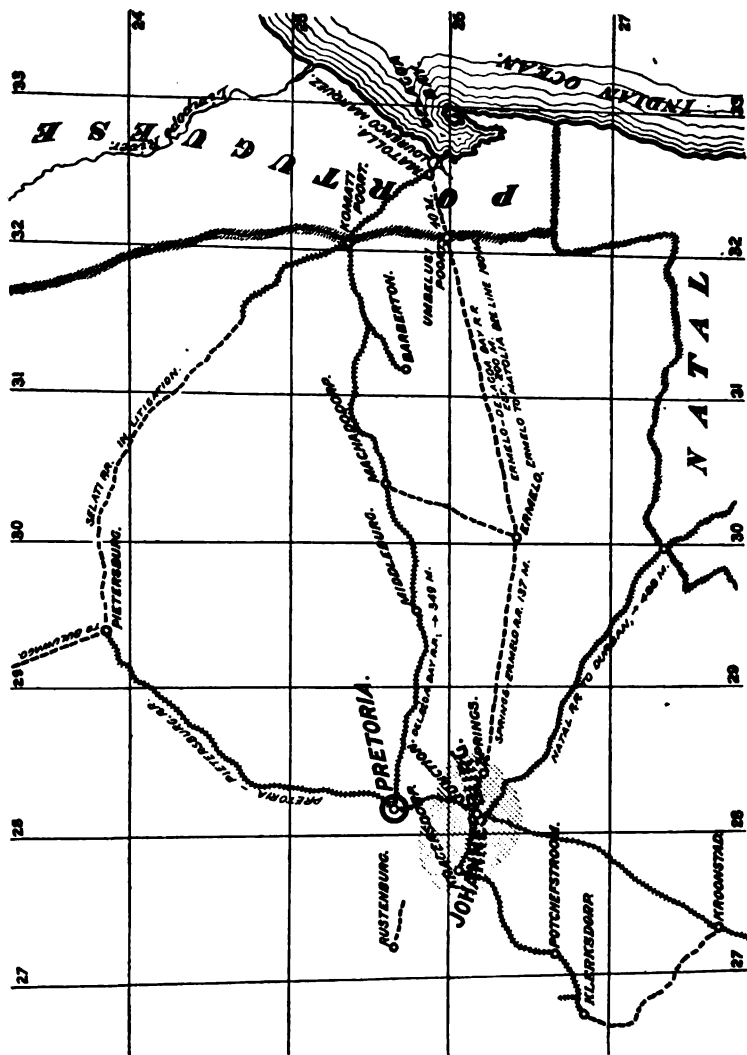
The accompanying sketch, which I have taken from the latest map of this part of the world, shows the routes of the present lines and the approximate routes of the authorized lines. The dotted lines indicate the roads to be built. The completed and prospective parts of the Selati Railroad, which was to run from Komati Poort to Pietersburg, are also shown on the map. This railroad is now tied up in litigation. It is hoped that matters will soon be straightened out so that the line can be completed to Pietersburg.

A large extent of country (the Zoutpansberg district) that is known to be rich in both reef and alluvial gold, but that has been practically inaccessible, will be opened up by the Selati Railroad when it is completed.

The distances between Pietersburg and several important towns in Matabeleland are:

	Miles.
Pietersburg to Tuli.....	135
Pietersburg to Rhodes' Drift.....	110
Pietersburg to Buluwayo.....	250
Pietersburg to Victoria.....	280

Rustenburg, shown on the map, is in the heart of a rich agricultural district, producing the best tobacco in the country. Rustenburg is about 100 miles in a direct line from Mafeking, on the railroad between Cape Town and Bulawayo. The Central South African



Railway conference has allotted the lump sum of £500,000, or \$2,433,250, for a railroad line connecting Rustenburg with the main lines; but it has not yet been decided whether it will connect at Pretoria or at Krugersdorp.

The new lines will be practically parts of the Delagoa Bay system, radiating from Lourenço Marquez, and will find their principal

employment in transporting imported merchandise from the port to important mining and agricultural centers in the Transvaal. Their secondary employment will consist in the transportation of agricultural products from the outlying districts to the towns; in carrying coal from the mines to the centers of industry; and in carrying hides, wool, and coal to the coast. With these new facilities, Lourenço Marquez will advance to be one of the leading ports in South Africa. Already, the natural increase of the trade of this port is very great, as the following statistics for the years 1901 and 1902 will show:

Description.	1901.	1902.
Imports from Portuguese countries.....	\$806,213	\$1,156,893
Imports from foreign countries.....	1,629,426	2,805,478
Imports in transit to the Transvaal.....	4,707,116	8,274,276
Exports and reexports.....	882,397	1,504,420
Coastwise trade.....	593,285	951,567
Total.....	8,618,473	14,692,634

W. STANLEY HOLLIS,
Consul.

LOURENÇO MARQUEZ, *March 16, 1903.*

PERMITS FOR IMMIGRANTS INTO THE TRANS- VAAL.

Consul J. E. Proffit reports from Pretoria, March 30, 1903, that the permit regulations are still in force in the Transvaal and Orange River Colony. He says:

The report to the effect that these regulations were abolished with the raising of martial law seems to have gained wide credence among immigrants to South Africa. Especially is this true of immigrants from America, who, coming to Cape Town and the other South African ports, are met with the information that permits are required for the above-named colonies. Applications for permits are then made through the consular functionary at the port and forwarded to this consulate for transmission to the chief secretary for permits. Consideration of such applications by the said official is often delayed for weeks, and the consequence is that the applicant remains at the port, where living expenses are excessively high, until such time as the permit is either granted or refused. The temptation to come into the country without awaiting the result of the application is often too strong to be resisted, and such action invariably leads to the arrest and trial of the offender, who is generally given the option of departure from the Transvaal or Orange River Colony

within twenty-four hours or imprisonment for six months and a fine of £500 (\$2,433).

The number of Americans who may enter the above-named colonies in any given month is limited to 50.

Form of application for permit, I am advised, may be obtained at any British consulate, and, to insure against delay, should be sent to this consulate, together with some evidence of applicant's citizenship, at least two weeks in advance of applicant's departure from America.

The permit secretary has also of late required that all applications be accompanied by an affidavit to the effect that the applicant is possessed of sufficient means to support himself and family in the Transvaal or Orange River Colony.

The applications for permits must set forth:

The name, nationality, and full address of the applicant; if a naturalized British subject, the date of naturalization. Whether a residential or temporary permit is required; if temporary, a definite period must be stated. Number of persons and number of children under 16 years of age. Occupation of applicant; also whether he has any guaranty of employment on arrival, and by whom. Applicant must state whether he can support himself and family on arrival. Two well-known references in South Africa must be given and the point of destination stated. It will save inconvenience to passengers if the permit form (which must be completely filled out to receive attention) reaches South Africa a week in advance.

AQUEDUCT IN WESTERN AUSTRALIA.

A remarkable engineering work has recently been completed for furnishing water to the Coolgardie and Kalgoorlie districts, Western Australia, where exist what are said to be the richest gold fields in the world.

A dam 100 feet high has been built across the Helena River, in the Green Mount Range, about 25 miles northwest of Perth. The reservoir thus formed is 7 miles long and will hold 4,000,000,000 gallons. It is proposed to deliver from the reservoir to Kalgoorlie—328 miles away—5,000,000 gallons of fresh water daily. To send this water through the 328 miles of 30-inch pipe it was necessary to make a lift of 2,700 feet by means of eight pumping stations, the machinery for which cost \$1,500,000. The pipe is laid in the ground along the track of the railway, except in crossing the salt lakes on the route, where it is supported on bridges.

The total cost of the work is estimated to be not less than \$15,000,000, while the expense of operating and the interest on money borrowed is \$1,750,000 annually.

The towns to be supplied with water are Kalgoorlie, Boulder, and

Southern Cross—all in the vicinity of the gold fields—with an aggregate population of about 50,000. It is not expected that the project will at once be self-supporting. As this stupendous aqueduct has been built and is owned by the State, the deficit accruing must be paid by the taxpayers at large.

Salt water has at all times been easily obtained; but the cost of condensation made fresh water too costly for abundant use. The aqueduct was undertaken that the rich gold fields of Coolgardie might be worked thoroughly, though a better supply of fresh water is also needed for domestic purposes. Although every house and tent is supplied with tanks to catch the rain water, it has been necessary to practice great economy in its use. It is proposed to charge miners \$1.50 and others \$1.75 per 1,000 gallons, and, costly as this may appear, if the 50,000 people to be supplied should require the works to run at the fullest capacity it would hardly meet expenses.

Some doubt has been expressed as to the sufficiency of the supply that can be gathered into the reservoir. It is said that although 26 inches of rain fell during 1902, there were but 726,000,000 gallons, instead of the 4,000,000,000 gallons that represent its full capacity, in December. However, it is generally hoped that the enterprise will meet with success, and an increased production of the precious metals will be made possible by an abundant supply of water. The boldness of this undertaking will be the better comprehended when it is remembered that the total population of the State is but 194,890 and the total wealth only about \$215,000,000.

ORLANDO H. BAKER,

SYDNEY, *March 2, 1903.*

Consul.

WINDMILLS IN SIAM.

Pursuing the subject of the need of American agricultural implements in the great Klong Rangsit rice district of Siam,* I quote from letters from Mr. Y. S. Sanitwongse:

A sample windmill, if sent to this country so that the farmers could see it working, should be made completely of galvanized steel—16 feet in diameter—and should be suitable for transmitting power, so that it can be used for irrigation in the dry weather and for husking and milling rice for home consumption during the planting and wet season. I will be glad to put the mill on my place in Klong Rangsit and let the people see what it can do.

The offer made in a former letter to you† that rice growers would be willing to share half the profits with any party who would plow the fields and reap and thrash the rice for them by machinery has not been taken up in America, no doubt partly

* See ADVANCE SHEETS Nos. 1300 and 1330.

† See ADVANCE SHEETS No. 1300 (March 27, 1902).

on account of the remoteness of this country from America and partly because of the uncertainty of getting sufficient remuneration for the trouble and expense. I am therefore requested to ask you what will be the expenses for an expert in such matters to come here and study conditions, so that if machinery is ordered there will be no failure.

This gentleman is the business manager of the great irrigation scheme and a large owner of real estate. He wants an opportunity to demonstrate what a good windmill can do in the district. This vast plain depends upon the rains for the one crop secured during the year. By the aid of windmills, there should be two crops a year and possibly three. The land is so level that the water is easily confined by dikes of a foot in height, thrown up around the small fields; and the soil is so clayey and adhesive that the water soaks very slowly through the earth. The fields are so near the level of the canal water that only the slightest lift is necessary to supply them.

The dry season extends from the 1st of November to the 1st of May every year, and during that time there is scarcely a day that sufficient wind is not blowing to furnish all the power needed for a mill. During this season, the soil is in such a condition that any of our agricultural implements could be used on the fields for plowing, harrowing, or even for reaping. Trade in farm implements may result from this endeavor, but after having been over the ground a second time, I should emphasize the opportunity for the right people that is represented in the offer to share half the profits of the year's crops with the party who will plow the fields and reap and thrash the rice.

HAMILTON KING,
Consul-General.

BANGKOK, *March 11, 1903.*

THE FINANCIAL SYSTEM OF JAPAN.

As long ago as 1606, more than two hundred years before Japan opened her doors to commercial intercourse with the Western World, the Government then in power established a system of coinage, which endured without legal change until 1868. During this period the Emperor of Japan was a mere figurehead, the real power being wielded by the powerful nobles called shoguns, while subject to these were the princes or daimyos of the various han (provinces), 270 in number. Whenever the shogunate governments found themselves in financial difficulty, they were accustomed to order a recoinage of the money of the realm, the new coins issued being in each case, with one exception, of smaller size or poorer quality than the former ones, although of the same denomination and assumed value. Some of the daimyos also secretly coined money and issued paper

currency for circulation within their respective jurisdictions. As a result, when the revolution of 1868 restored the Emperor to temporal power, the currency of the country was in a most unsatisfactory condition, and one of the first subjects to receive attention from the newly installed Imperial Government was monetary reform.

The foreign commerce, which had begun to develop soon after Commodore Perry's visit in 1853, made more urgent the need of a uniform currency, and the scarcity of money caused much distress among the people. The Government, therefore, made immediate provision for the establishment of a mint at Osaka, and, to relieve the pressing need of currency, issued kinsatsu, or gold notes. These were loaned to the different han governments on their applications, the amount which any might receive depending on their revenue, and the authorities were enjoined to expend the money in the development of industry among the people. Farmers and merchants were also permitted to apply for loans in this currency, and received amounts proportioned to the value of their land or the volume of their trade. These advances were to be repaid in thirteen annual installments, each equal to 10 per cent of the original loan. The payments should be made in the same notes, which, when so repaid into the treasury, were to be canceled by being cut to pieces; though how thirteen payments, each 10 per cent of the original issue, could be made from the notes of that issue I am unable to explain. As the notes were to be destroyed when repaid into the treasury, they were not convertible into specie.

The Government mint, for which provision had been made, was not ready to begin operations until November, 1870, and in the interim the Government had given much attention to the reform of the currency, comparing the systems of England, Continental Europe, and America, and studying the special conditions of Japan and her Asiatic neighbors. An imperial ordinance was issued stating "the intention of the Government to adopt a system of coinage which shall be in consonance with the best usages of the world and to issue new coins in accordance with this system." The mint was free, so that any citizen might take bullion or old coins and have them coined into money of standard weight and fineness. The system was decimal, with the gold yen of 25.72 grains troy, nine-tenths fine, as the standard. Half yen and lower values were coined in silver, and, during a limited time, for the convenience of foreign trade, 1-yen silver coins were to be issued. These were made a legal tender in the treaty ports, but in other parts of the Empire they could be used only by the mutual consent of the parties to the transaction. In 1878, the country having been largely drained of its gold, the Government made silver a legal tender throughout the country.

In 1871 the system of feudalism was swept away and the Imperial Government was under the necessity of making some provision regarding the paper money—some 1,600 varieties—which had been issued by the daimyos, as mentioned in the first paragraph of this report. Lack of revenue had already caused the Government to violate its promise to destroy the gold notes of its loan to the provinces, when they were repaid into the treasury, and now, under the pretext of crude workmanship in the making, it called in all these notes along with the han notes and issued in their stead inconvertible notes of more perfect manufacture. All the paper money in circulation thus became fiat money; it depreciated greatly, and the specie which the mint was now coining was rapidly sent out of the country or withdrawn from circulation. The Government tried by expostulations and threats to uphold the credit of its currency, but without success; and in 1873 it issued ordinances providing that a national bank might present this inconvertible paper money, to the amount of six-tenths of its capital, to the Government and receive therefor exchange bonds bearing interest at 6 per cent. These bonds might then be deposited with the Government as security for bank notes to be issued to the same amount, the remaining four-tenths of the capital being retained in specie for their redemption by the bank. This plan also failed, the bank notes being presented for exchange so promptly that they never gained any extensive circulation.

About this time the Government issued some 170,000,000 yen* of hereditary pension bonds, and in 1876 promulgated an ordinance permitting national banks to deposit these bonds as security for bank notes, which if presented for payment might be redeemed with Government inconvertible paper money. A rebellion in Kiushu—the southern island—required a heavy expenditure for its suppression, and this occasioned another issuance of Government paper money, so that in 1878, when the lack of specie caused silver to be made a legal tender, 120,835,000 yen of fiat money was in circulation, and in January, 1880, it reached its highest point, being then 170,157,477 yen. The natural result of such a policy followed—paper money rapidly depreciated and silver and gold disappeared from circulation.

The Government, ascribing the difficulty to the scarcity of silver, attempted to remedy the situation by prevailing on some of the banks to sell silver, by providing for the exchange of Mexican dollars, and by the establishment of the Specie Bank, where people were invited to invest hoarded coins, so that these might be supplied to the market. The Specie Bank was also to engage in buying and

* The nominal value of the gold yen was estimated by the United States Mint from 1874 to 1890 at 99.7 cents.

selling foreign exchange, so as to facilitate monetary circulation between Japan and other countries, in the expectation that silver would thus be brought into the country. All this availed nothing. The Specie Bank barely escaped bankruptcy. The margin between paper and silver continued to increase until in April, 1881, a yen of silver was worth 1.815 yen of paper.

In 1872, the fifth year of the restoration of the Imperial Government, the coins and bills which had been accumulating in the treasury were set apart in a reserve fund, to be used for the redemption of treasury bills and other obligations of the Government apart from the current expenses. It was increased at the end of each fiscal year by the funds remaining in the general account, or the excess of the revenues over the expenses for that year. Although intended for this special purpose, and to make provisions for any crisis or abnormal condition which might occur, the Government had fallen into the practice of drawing from this fund to provide for temporary deficits in the revenue.

During the latter part of 1881 Mr. (now Count) Matsukata Masayoshi became Minister of Finance, and his knowledge of financial economy, combined with a clear view of the situation in all its relations, enabled him to find a way of extricating the country from its difficulties. His first step was to stop the practice of drawing from the reserve for temporary purposes; his next, to change the method of making disbursements so as to induce greater economy in State expenditure. Industrial enterprises were no longer permitted to obtain loans from the Government reserve, and loans previously made were required to be repaid according to the terms of the agreement. Having secured the rehabilitation of the reserve by these measures and provided for any temporary deficit in the revenue by authorizing the issuance of treasury bills drawing interest, to run for a fixed term and payable from the revenue of the year of issue, the minister turned his attention to the larger and more difficult task of adjusting the troubles which had arisen in connection with the paper money.

There were at this time more than 260 national banks (including branches) organized after the plan of our own national banks in the United States, with this one important difference: their notes, instead of being redeemable in specie or its equivalent, were redeemable in Government inconvertible notes. Count Matsukata believed that the lack of correspondence and community of interest among these banks was a serious hindrance to the prosperity of the country. He proposed a banking system modeled after those of England and France and prepared a memorandum embodying his views for presentation to the cabinet council. His recommendations were

approved, and in October, 1882, the first measures toward carrying them into effect were taken by the establishment of the Bank of Japan with an authorized capital of 10,000,000 yen, of which one-fifth must be paid in before beginning business. The governor and vice-governor of the bank are appointed by the Government, and the directors elected by the shareholders must be acceptable to the Minister of Finance, who also appoints comptrollers to examine the affairs of the bank at stated intervals. None but Japanese subjects may be shareholders, and they must obtain permission from the Minister of Finance before purchasing shares. The business of the bank is to discount or purchase Government bills, bills of exchange, commercial bills, etc.; to buy and sell gold or silver bullion, or make loans on the security of the same; to collect bills for banks and corporations; to receive deposits; and to make advances upon security of Government bonds, treasury bills, or other bonds or shares guaranteed by the State. The bank is expressly prohibited from becoming a shareholder in industrial enterprises and from making loans on or owning real estate or shares of any bank or corporation. It may establish branch offices, with the permission of the Finance Minister, or may be required by him to open a branch or subbranch office at any place he deems it necessary, and the Government may at its own convenience intrust to the bank services connected with the receipt or disbursement of the Government funds. The bank has the privilege of issuing convertible bank notes under regulations prescribed by the Government, but permission to exercise this privilege was withheld for some years after its establishment.

The Yokohama Specie Bank, which had been established in 1880 for the purpose of increasing the specie in circulation, had not only failed in its intended work, but also caused considerable loss to the Government and was itself on the brink of bankruptcy. This failure was due, at least in part, to the inexperience of its officers, and the minister now caused a complete reorganization of the bank, appointed new officers, and issued detailed regulations to govern its policy. Three million yen (afterward increased to 4,000,000) was set aside from the Government reserve fund to be employed by the Specie Bank in buying foreign exchange for the profit of the Government. Foreign bills of exchange, based on the security of the principal exports of the country—tea, silk, and rice—were bought, agents being sent into the interior for this purpose at the time of marketing the year's crop, and these bills were sent for collection to the Japanese consul or other person designated at the place of payment. The specie thus obtained was used for paying the principal and interest of loans, the salaries of officers, and other Government expenses in foreign lands, the remainder being shipped to Japan in

coin, bullion, or drafts, according to the market. The Specie Bank received a commission of 2 per cent of the gains; the remaining profits, which during the first eight and a half years amounted to more than 50,000,000 yen, belonged to the Government and was applied to the redemption of inconvertible paper money.

During the same year in which the Bank of Japan was established and the Specie Bank reorganized, the Government took measures to increase its revenue by the levy of stamp duties and license taxes and applied the surplus thus provided to the redemption of the inconvertible paper money and the strengthening of the reserve. By these means the paper money in circulation gradually decreased, until in 1885 it amounted to little more than half its former volume and the Government held specie in its reserve fund equal to almost half the paper still floating. At the same time the paper rose in value until it stood on a par with silver.

Minister Matsukata believed this an opportune time for the Bank of Japan to begin the issue of convertible bank notes, and these appeared in the market on May 9 of that year. These notes were convertible with silver, of which the bank was required to keep a sufficient reserve for their redemption.

Two years earlier (1883) a plan for the redemption of national-bank notes had been devised and put in operation by the minister. In doing this, the good of the country and justice to the banks demanded that due consideration should be given to apparently conflicting interests, and the success of Count Matsukata in harmonizing these antagonistic elements of the problem and extricating the financial situation from the perilous entanglement in which it had become involved prove him to be a man of much more than ordinary breadth of understanding and fertility of resource. He recognized that a stable, uniform currency, based on real values, is essential to financial prosperity, and this demanded the retirement of the national-bank notes, which under existing laws were no better than fiat money; but the national banks had been chartered for twenty years, of which only five had yet passed, and to demand the redemption of their notes before the expiration of the remaining fifteen years would be grossly unjust to the banks and might result in disastrous failures. Moreover, the sudden withdrawal from circulation of so large a volume of currency within a short period, whether at the expiration of the bank charters or before, was likely to disturb the business of the country and cause much distress. It was accordingly provided that the reserves of the national banks and an annual deduction from their profits equal to $2\frac{1}{2}$ per cent of their circulation should be deposited with the Bank of Japan and by that institution be invested in Government bonds, the interest of which

would be applied to the redemption of the national-bank notes. As these reserves had formerly lain idle in the vaults of the national banks, this plan drew from the banks only a portion of each year's profits, and, as compensation for this, the bonds deposited with the Government to secure the circulation were released as the notes were redeemed. The notes were withdrawn gradually from circulation, so that the people did not suffer from any sudden or violent change in the volume of currency. At the end of the period for which the charters had been granted, any notes still outstanding were to be redeemed by selling part of the bonds held for the banks and the remainder returned to the banks, which might then dissolve or be reorganized as private institutions.

In 1888, when 49,337,247 yen* (\$34,350,947) of Government paper money still remained in circulation, the desire to hasten the retirement of this, without unduly decreasing the volume of currency, caused the Government to enlarge the powers of the Bank of Japan, so that it was enabled to issue 70,000,000 yen (\$52,710,000) of convertible notes in excess of its specie reserve, these being secured by Government bonds, treasury bills, or commercial bills of a reliable nature. Of this amount 22,000,000 yen (\$16,566,000) was loaned to the Government at an annual rate of 2 per cent interest, and was used for the redemption of Government paper money, and 27,000,000 yen (\$20,331,000) was set aside for issue from time to time in proportion to the redemption of national-bank notes. The bank was further empowered, in case of any emergency in the market, with the special permission of the Finance Minister, to issue a greater amount of convertible notes, on the same kind of security, such additional issue being subject to a tax of 5 per cent per annum. This provided for the redemption of the full amount of Government notes, though they did not entirely cease to circulate until the end of 1898.

As has been shown, the reforms devised and put in operation by Minister Matsukata relieved the Empire from the evils arising from an inundation of fiat money, but before these reforms could be fully carried out, commerce began to be affected by the unsettled condition of silver; for although, during the early days of the restoration, the gold yen had been made the standard of value, the difficulties under which Japan had labored had caused her to change gradually and almost unconsciously to a silver basis. In 1893 a commission was appointed to investigate the relative advantages of a silver and a gold standard. A majority report favored gold, but the minister, although he agreed with their views, did not see how he could find means for carrying them into effect until the treaty provision for the payment of the Chinese indemnity showed a way out of the difficulty.

*The silver (or paper) yen was valued by the United States Mint, in 1888, at 75.3 cents.

The treaty specified that China should pay a certain number of Kuping silver taels; but as it was necessary to make a loan in England for the purpose, the Chinese Government was easily induced to agree to the payment of an equivalent in sterling gold at the current rates, and this was paid by the Chinese minister at London to the Japanese minister at the same place. The first payment was made in 1895 and the last May 7, 1898, the total amount placed to the credit of the Japanese Government in the banks of London being £38,082,884 15s. 7d. (\$185,330,358.78). This was later shipped to Japan in bullion or gold coins or drafts, according to the requirements of the home market.

The Japanese Finance Minister was now in a position to carry out his views by adopting the gold standard, and, after a careful investigation to determine the best means of making the change and yet avoiding a disturbance in the relations of debtor and creditor and escaping violent fluctuations in the prices of commodities, a law was enacted and promulgated March 26, 1897, providing that the unit of coinage should be the gold yen, though the smallest gold coin to be minted was made the 5-yen piece, weighing 4.1666 grams; that the silver yen in circulation should be gradually exchanged for gold and retired, 1 gold yen being paid for 1 silver yen; that silver should still be minted into subsidiary coins, which should be legal tender up to 10 yen; and that the convertible notes hitherto redeemable in silver should thereafter be redeemable in gold. In fixing the weight of the gold yen, the minister had determined the equivalent, according to the rates then current,* of the silver yen in circulation, and by adopting this value for the new coins it was possible to make the change without disturbance to trade. There was practically no gold in circulation, and it was provided that any of the former gold coins which remained in the country might be exchanged for new coins in the ratio of 1 yen of the old coins for 2 yen (98.6 cents) of the new, this being the ratio of weight.

The silver 1-yen coins brought to the treasury for exchange were disposed of in various ways. Some were recoined into subsidiary currency; some were sold in Hongkong and Shanghai as bullion; some were sent to Formosa to circulate as money at a valuation to be determined every six months by taking the average prevailing price in Hongkong, Shanghai, and Formosa for the preceding six months; and some were sent to Korea to be exchanged for convertible notes of the Bank of Japan, the whole being thus disposed of before the end of 1898 at a loss to the Government of a fraction over 7 per cent. This loss was, however, made good by the gain in the coinage of subsidiary currency, so that no part of the indemnity was

* 1 yen=49.8 cents.

actually consumed in making the change, and the various transactions were so skillfully conducted that the conversion of the whole sum of more than 75,000,000 yen (\$37,350,000) caused no serious fluctuations in the market value of silver.

The masterly manner in which Count Matsukata overcame the difficulties which confronted him when he accepted the portfolio of finance, the skill with which he drew the country away from the peril of threatening bankruptcy and all the evils of fiat currency, avoiding the dangers of sudden contraction, bolstering up the old structure of inconvertible notes until he could provide a broad and safe foundation for the new financial system, changing thus, slowly but safely and surely, to a silver basis, and then, hardly waiting for the completion of this work but yet without destructive haste, replacing the silver by a gold foundation, awakens high admiration and entitles him to the warmest gratitude of his countrymen. Through him Japan has to-day a financial system which will compare favorably with those of the oldest commercial nations of the world.

As the commerce and industries of the country have developed, the powers of the Bank of Japan have been increased and other banks have been organized to perform other functions. For a long time after the adoption of the gold standard fears were entertained that the Government might not be able to maintain a safe reserve, but five years without an occasion for mistrust has induced a feeling of security, and prophecies of disaster are now rarely or never heard. The Bank of Japan has increased its paid-up capital to 30,000,000 yen (\$14,940,000), and has obtained the right to issue convertible notes in excess of the specie reserve, on the security of Government bonds and other approved collaterals, to the value of 120,000,000 yen (\$59,760,000). At the end of 1902 the specie reserve stood at 100,300,000 yen (\$49,949,400), and the lowest point it has reached since 1897 is 67,349,000 yen (\$33,539,802).

The authorized capital of the Specie Bank has been increased to 24,000,000 yen (\$11,952,000), of which 18,000,000 yen (\$8,964,000) is paid. Its relations with the Government are not so close as formerly, the deposit of treasury funds to be used in discounting foreign exchange for the advantage of the Government having been withdrawn, but the Bank of Japan is obliged to rediscount, at 2 per cent per annum, paper purchased by the Specie Bank up to 20,000,000 yen (\$9,960,000), and in return the Specie Bank may be required to assist in floating foreign loans and to perform other services for the Government.

In 1896 the Hypothec Bank of Japan was founded under a special law for the purpose of developing agriculture and industry. This bank has an authorized capital of 10,000,000 yen (\$4,980,000),

one-fourth paid up, and is authorized to make long-time loans on real security, to public bodies organized under the law, and to issue debentures up to ten times the paid-up capital, but these debentures must not exceed the amount of its loans. The Government guaranteed an annual dividend of 5 per cent for the ten years following its establishment, and exercises a strict supervision over its affairs. This bank also serves as a kind of central bank for the forty-five agricultural and industrial banks organized in the different ken, or prefectures, to more fully carry out the purposes for which the Hypothec Bank was organized. Their privileges and restrictions are similar to those of the Hypothec Bank, but their operations are on a smaller scale and are purely local.

The Bank of Formosa was established in 1897 to furnish capital for the development of the natural resources of Formosa, assist the growth of commerce, and serve as an agent for the Treasury Department of the Government. The Imperial Government subscribed one-fifth the capital and remitted the dividends on its shares for five years, during which it agreed not to sell. The remitted dividends must be held to strengthen the reserve of the bank.

The Colonial Bank of Hokkaido was organized in 1899, with a capital of 3,000,000 yen (\$1,494,000). Its field of operations is the northern island of the Japanese group, which bears to the other islands a relation somewhat similar to that which the western part of the United States a few years ago bore to the part east of the Rockies. The functions of this bank are similar to those of the agricultural and industrial banks, but the conditions in Hokkaido are so different from those in the other districts that it was thought wiser to make special provisions for its control. The Government subscribed for one-third the shares and remitted to the bank the dividends on these shares for ten years.

The Industrial Bank of Japan was founded in April, 1902. It is intended to do for commercial societies or bodies what the Hypothec Bank does for agricultural and industrial interests. Its capital is the same, and its powers, privileges, and duties correspond closely to those of the other.

The seven banks just described may properly be called Government banks, since each was organized under a law specially framed to meet its requirements, each is subsidized either by the direct payment of a sum of money, a guaranty of dividends, or other means, and each is under the strict supervision of the Minister of Finance. Their officers are either appointed by the Government or, if elected, must be approved by the Government, and they all are under obligations to perform certain services for the Government.

Besides these, there are many private banks, organized under a

general law, which requires them to secure a license from the Government, to publish statements of their business, and to report their general operations to the minister. The interests of the public are further guarded by special regulations regarding the reserves and investments of savings banks.

Many of the private banks are strong institutions, with abundant capital and capable managers. One of the strongest is the Mitsui Bank, owned by members of the Mitsui family, who assume unlimited responsibility for the liabilities of the bank. The Mitsui family, which now includes eleven households, has been identified with industrial and commercial undertakings for more than two centuries, and has so long been noted for wise management and honorable dealing that the very name has become a tower of strength. In the early days of the restoration period the wealth, sagacity, and patriotism of the Mitsui family upheld the credit of the Government and saved the country from bankruptcy. When their services were no longer needed by the Government, the Mitsui Bank, which is only one of many enterprises in which the Mitsui family as a whole is engaged, was reorganized, and it is now second only to the Bank of Japan in the extent of its operations.

Besides these native banks, some of which have branches in all the important commercial centers of the world, the business of the country is assisted by many foreign banks which have branches in the treaty ports. Among these, the most important are the Hongkong and Shanghai Bank and the Chartered Bank of India, Australia, and China, both English concerns; the Russo-Chinese Bank, with headquarters at St. Petersburg; and the International Banking Corporation, whose head office is at New York City.

In 1900 the total paid-up capital of the ordinary native private banks was 245,158,916 yen (\$122,089,140), and that of the savings banks 26,834,957 yen (\$13,363,808). Combining these and adding in the capital of the various Government banks gives a total paid-up capital of 347,717,358 yen (\$173,163,244) engaged in banking at the end of 1900. The amount now is undoubtedly greater, but no later figures are available. The specie in circulation at the same date was 127,494,866 yen (\$63,492,443) and the bank notes 230,821,770 yen (\$114,949,441), while the public debt stood at 506,167,249 yen (\$252,071,290). The people of the country have not become habituated to the free use of bank checks for paying bills and accounts, but the use of these is increasing and is being encouraged by the authorities as a means of reenforcing the volume of currency. Clearing houses, modeled after those of Europe and America, exist in all the large commercial cities. The oldest, that of Osaka, was instituted in 1879.

Thus has Japan been furnished with all the appliances necessary to carry on the commerce, foreign and domestic, of a highly civilized and prosperous community. Her financial system has been founded in wisdom, and it only remains to future ministers to follow in the path already pointed out.

YOKOHAMA, *April 1, 1903.*

E. C. BELLOWS,
Consul-General.

THE OSAKA EXHIBITION.

Consul S. S. Lyon sends from Kobé, March 25, 1903, description of the exhibition in that city (prepared for the Kobé Chronicle), from which the following extracts are taken:

AT THE OSAKA EXHIBITION.

So far as the general arrangements are concerned, practically everything is now in working order. Some of the buildings erected by private firms are unopened and a few of the stands are incomplete, but it may fairly be said that a really excellent exhibition has been established. The formal opening ceremony has been fixed for April 16.

The various prefectures of Japan have contributed to the general exhibition, each according to its size. The prefectures are not grouped separately, but each exhibits whatever certain districts may be celebrated for in the section which may include that product.

Aichi exhibit.

A large number of samples of straw braid are exhibited by the Aichi-ken Straw Plait Folders' Association. The output of this straw amounts to \$500,000 per annum, and the excellence of the raw material is shown by the finished article, which is displayed in great variety in the form of hats at the other side of the building.

The shibori, which as yet has only been exported for exhibition purposes in foreign countries, is shown close by. This is a means of bringing out designs in dyed stuffs by dexterously making knots in the material so that the dye does not penetrate when the stuff is plunged into the coloring solution. Shibori sold very readily at the Paris exhibition, and it is believed that a good European market will ultimately be obtained for the pretty dress material.

The Owari Weavers' Guild has on view specimens of woven silks. From Nakajima there are some elegant samples of that delicate mixture of silk and cotton for which the district is famous, the output of which totals \$1,500,000 per annum. A very large case is occupied by Kataoka's woolen factory in the display of serges, the demand for which is increasing abroad.

In a corner, somewhat out of the way, are some most artistic designs in tiles and roofing materials, while the drainpipes show that Aichi-ken is ready to supply the necessities when the much-needed sanitary reforms are adopted in Japan. Fireproof bricks manufactured by the Aichi Brick Company are a feature of this section. Round the corner are specimens of cotton blankets which are claimed to be cheap and good.

A tasteful case is that exhibited by the Aichi Bussan Gumi, showing Japanese ladies' dress materials. A large section is devoted to Japanese towels, showing the process of manufacture, from the raw material to the finished article, and there is a brilliant display of paper lanterns from Nagoya. The Kabuto Beer Company

has an original exhibit—a huge barrel, surrounded by smaller ones with bottles upon them, being arranged under a thatched roof. Next to this is a veritable stack of soy, boxes and bottles of this delicacy being piled one upon the other in an effective manner.

The saki brewers have a little parlor fitted up, the walls of which are saki barrels, the entrance an archway of saki barrels, the seats saki barrels with little round red cushions.

The Aichi Clock Company employs 300 workmen, and this exhibit proves that they can certainly turn out some very handsome and cheap timepieces. There are twelve companies in the Aichi Clock Manufacturers' Guild, under whose wing this exhibit is placed.

Hyogo Prefecture's exhibit.

A variety of bamboo furniture, whatnots, and overmantels is exhibited by Messrs. M. Nakai & Co., of Kobé. There are specimens of silk and some beautiful fire screens. One case is full of oil-lamp burners manufactured by S. Konishi, in Itami. Mr. S. Nakamura, of Kobé, shows a large case of shell buttons. Some quaint lanterns made of straw are sent from Kaibara, while straw plait has been exhibited in goodly quantities by various firms in Kobé. Different qualities of matting in various stages of manufacture are also on exhibition from firms in Kobé and Harima. From all appearances cooping would appear to be a flourishing industry in Kobé; there is quite a large exhibit of saki barrels manufactured in that city. A large glass case is occupied by the joint exhibits of the Japan Shoe Trade Association, and they certainly speak well for the shoemakers of Hyogo-ken. There are also some fine silken rugs, and some good samples of blankets and shawls.

Under the chemical-industry section, Hyogo-ken has a compact collection, principally of household commodities. There are candles, oils, and soap. The Mitsu Bishi Company shows all kinds of paper, samples of this commodity having been sent, also, from Harima and other parts of the prefecture. Specimens of camphor are shown by the Sumitomo Camphor Refinery, and there are all kinds of sauces, relishes, and beverages.

At the other side of the building Hyogo-ken has a creditable display of various kinds of tiles, both for roofing and flooring purposes; and there is some fine porcelain from Awaji. Two giant teapots of delicate workmanship are worthy of inspection, but, unfortunately, as is the case with the majority of the exhibits, there is no description of them in English. The Shinto Kaisha (Kobé Porcelain Company) has some beautiful vases on exhibition, together with teacups, etc. There are also some artistic porcelain trays, basins, etc.

In the Transportation Building the Sanyo Railway Company have on view a miniature railway carriage, labeled "For Miyajima," inside which is a painting of Miyajima as it is seen on looking through the windows of the compartment. The exhibits of the Kawasaki Dockyard Company consist of models of ships, among which is a specially fine model of an Osaka Shosen Kaisha steamer.

The Manufactures Building.

In the Manufactures Building, the great disadvantage, from the foreigner's point of view, is that in the majority of cases he can not see at a glance where the exhibits come from and what they are. The descriptions are invariably in Japanese only, and when the English is given as well it is often so minutely written that it is quite a strain upon ordinary eyesight to decipher it. Nevertheless, many of the exhibits are too good to be missed.

Beginning with the dyeing and textile industries, silks take the lead, some superb specimens being shown by nearly all the prefectures. A novel idea is an

arrangement by Fukui-ken of an imitation waterfall in the form of draped silks. From the north (Toyama-ken) are sent some magnificent ladies' kimono and other silk-embroidered garments, together with quantities of samples of habutai. Gifu-ken has a showy exhibit in this department. Over an archway of plush and gold is a full-sized figure of a fisherman with diving birds, illustrating the method of fishing in the Nagarakawa. In two large show cases the Kaiki Manufacturers' Union have arranged trees, the trunks of brown and the foliage of green silks. Silk lace, satins, dyed silks, and gold and silver thread are also shown. A distinct branch is opened up by the Hokkaido-cho in the exhibition of linen, duck, etc., and tent cloths. Toys and European-style kitchen ranges are the main feature of Saitama-ken. Tokyo-fu occupies a large amount of space with choice specimens of ivory work, one of the most striking being elephants represented as crossing a bridge which comprises half a tusk. Among these exhibits there are superb carved-ivory umbrella stands, bronzes, lacquer and silver work, etc. The Ishidzumi fans are almost dazzling in their beauty; and many things dear to the Japanese, such as shrines for private houses, may be seen here.

In the mining and metallurgy section, Dai Nippon's "black diamonds" are in evidence, and the Osaka Gold and Silver Leaf Manufacturers' Union have erected a clever working model representing a Japanese man and woman beating out gold. This attracts a constant crowd and causes no little amusement. A corner of the building is devoted to Government exhibits, which are principally of a naval and military character, the products of the Osaka Military Arsenal, together with models of battle ships.

The Education Building.

This is a very small building compared with the Manufactures Building, but it contains much of interest. A feature is the large number of surgical instruments; and at the farther end is a drawing-room with a number of pianos, organs, and other musical instruments. The pianos, all made in the prefecture, appear to be of very good quality. School requisites are on view in different parts of the hall, and physical training has not been forgotten, for a Tokyo firm has a large stand showing all sorts of gymnastic and athletic goods. A horizontal-pendulum seismograph, microscopes, barometers, etc., are shown, and almost every branch of education is represented in some form or other.

Japanese machinery.

When one considers that but some thirty years ago not only was there no such institution as a factory in Japan, but that iron foundries and mechanics' workshops as now understood were unknown, while engineering was an alien art, the display beneath the roof of the Machinery Building at the exhibition is little short of marvelous.

There is an extensive display of silk-weaving and mat-making machines, both old and new style. The Mitsui Shibaura Engineering Works, of Tokyo, have on exhibition a number of electrical motors and generators and gas and oil engines, while electrical fittings, tools, beltings, etc., come from various firms in Osaka-fu.

Kanagawa-ken sends some mat-making machines, and models of similar appliances have been made in Ehime-ken and are now on view under that prefecture's name. Two sock-making machines, one the latest in use and the other evidently one of the first invented, are exhibited; also a match-making machine, a lemonade-making machine, a distilling machine, and fire-brigade appliances.

From the smaller exhibits it is interesting to turn to those of the Osaka Iron Works, which firm occupies a large space. There is a huge steam navvy which towers above the other exhibits, and an oil tank which seems to be of excellent

workmanship. All of the exhibits of this firm are well worth attention, as indicating what can be done in the engineering line in Japan. A compact rice-cleaning machine attracts a large crowd of spectators. There are soap-making machines manufactured by the Osaka Soap Works, while the Kobukuro Iron Works (Fukuoka-ken) have on view a massive hoisting engine. The exhibit of the Oishi tea-refining machinery is fitted with furnace and everything complete. Several printing and numerous smaller machines for different purposes are on view.

The nation's produce.

In the Agricultural Building are shown horticultural, forest, and aquatic products, etc. The first exhibit to catch the eye is the fine display of apples, and, as might be expected, there are hundreds of samples of rice on all hands. A veritable picture gallery of silkworm eggs on cards constitutes the main feature of the prefectures of both Nagano and Gumma. The chief exhibit of Ibaraki-ken is a model illustrative of irrigation processes and one representing water-filtering works.

A corner of the building is occupied by the agricultural experiment station, and this should not be missed by visitors. In addition to numerous samples of paddy rice, classified in English and Japanese, there are models of tobacco-curing houses close to which are specimens of the raw leaf, while the various stages in the manufacture of pipe tobacco, cigars, and cigarettes are clearly shown. Tobacco from different countries, too, is compared. There are also plans and diagrams illustrating the effect of various chemicals on soils. There is an exhibition of apiary appliances; and the models of growing plants upon which are seen the insects fatal to them must prove highly instructive to farmers. Various kinds of field mice are also shown in bottles, and the whole section arranged by the experiment station is capital in every way.

The Sericultural Institution exhibits models of various kinds of silkworms, varieties of silk cocoons, and materials showing the process of conversion of the silk into skeins.

Under a thatched roof prettily entwined with artificial tea blossoms Shizuoka-ken has a tasteful arrangement in glass vases of different qualities of tea. Here are also some huge oranges. The Japan Sugar Refinery Company have on view all manner of things besides sugar—a case of saddles and harness being a feature.

The forestry section includes not only timber, but forest products; and thus it is that the collection of furs from Hakodate is found here. In the same department is a large exhibit of match wood. Mushrooms are the specialty of Kumamoto-ken's exhibits, while the people of Yamaguchi-ken have selected charcoal in baskets to be the feature of their contribution to the forestry section.

Piscatorial products and everything connected therewith are to be found in the fishery section. Specimens of seal-skin jackets, etc., are on view. There are innumerable models of fishing smacks, nets, etc., and samples of fish—dried, salted, in bottles, and made into Japanese delicacies. Some well-arranged cases of pearls are on view in the section occupied by Okinawa-ken, and a lovely collection of coral may be seen in the Kochi-ken department.

The foreign section.

The largest space is occupied by Messrs. M. Raspe & Co., of Kobé, Yokohama, Tokyo, etc. A feature is made of the exhibit of a complete set of weaving machines, and it is said that although Messrs. Raspe & Co. only started importing these machines in October last, they are already finding a ready sale in the Japanese market. German shoemaking and cigarette-making machines and half a dozen powerful electric search lights from a Nuremberg firm are included in this exhibit,

as well as match and match-box making machines, rifles, wire samples, chemicals, perfumes, etc. Messrs. L. J. Healing & Co., of Yokohama and Kobé, have on view a display of electrical appliances from various British firms; also a 2½-horsepower oil engine and another which may be propelled by gas or oil. Messrs. Hunter & Co., of Kobé and Osaka, exhibit specimens of timber, paints, varnishes, electrical appliances, and other machinery and parts, which, when everything is completed in connection with it, will no doubt constitute a highly interesting department of the machinery section.

A large space is occupied by Messrs. Birch, Kirby & Co., Limited, representatives of Messrs. Parkinson & Son, Shiplay, Yorks, Saunderson Brothers, Chewbould, Limited, and others. A variety of samples of rubber and steel goods is shown, including among the latter sword and bayonet components. But the chief features of this firm's section are a couple of engines, two of the biggest exhibits in the building. One is an 8-horsepower portable steam engine and the other a 16-horsepower long-stroke stationary steam engine. Messrs. H. Isono & Co., of Tokyo, Yokohama, and Osaka, show a model of a Turbo alternator by C. A. Parsons & Co., of Newcastle-on-Tyne.

Messrs. Bruhl Frères (Yokohama and Kobé) have on view one of the latest "Oldsmobile" motor cars, motor and safety bicycles, etc.; also Edison (Boston, United States of America) pile-sinking outfits, a Davidson (New York) pump, a Wolverine marine gasoline engine, a Springfield gasoline engine, and other interesting mechanical appliances.

The Mitsu Bussan Kaisha have a variety of exhibits, including oil engines, 12-horsepower and 6-horsepower, respectively, and an electrical engine and dynamo from England; samples of bone goods from America; a model, under a glass shade, of a refrigerator railway car and fixtures sent by Messrs. Swift & Co., United States of America; one of Vickers, Sons & Maxim's famous guns; a case of Libby's canned goods; American lighting and heating apparatus for railway carriages and street cars; etc.—the whole forming one of the best and most varied displays in the building.

Leading out of the Machinery Hall is the samples section proper. Messrs. H. Ahrens & Co. are responsible for an attractive case of chemicals, etc., erected by the Badische Anilin and Soda Fabrik. Waterman's American fountain pens, Densmore typewriters, etc., are on view close by, and at the end of the hall an Italian firm shows a variety of rubber goods and a diver's costume. Close to foreign dental appliances are samples of Indian cotton. Next to the Liebig Extract of Meat Company's exhibit is a veritable grocery store, where specimens of all kinds of provisions are on exhibition, sent by the Oregon Packing Company, United States of America. The Japan Forestry Association provides a little picture gallery of woods, together with specimens of foreign timber and a model of a sawmill. An artistic display of calicoes is shown by the Calico Printers' Association of Manchester.

In a corner somewhat out of the way Messrs. Nestlé & Co. have one of the most original designs in the building in the shape of a Swiss chalet. Swiss cow bells hang from the eaves of the little house. Japanese maidens distribute circulars to passers-by. Messrs. Runge & Thomas, of Yokohama and Kobé, have an exhibit of "Concordia" bicycles, sewing machines, cartridges, etc.

Canada's contribution.

At first it was thought that Canadian exhibits would occupy a portion of the Foreign Samples Building, but the Canadian Government eventually decided to erect a separate building, and it promises to be the sensation of the exhibition. A

huge crown of red material with a framework of ears of corn is represented as resting upon a gigantic sheaf. This is surrounded by smaller sheafs, beneath which is a most tasteful arrangement of grains and cereals of various kinds from all parts of Canada. Grasses are festooned and arranged at the base of the crown, and at either side, as one looks at the device from the entrance of the building, are erected two enormous stars, similarly decorated, and bearing the maple leaf—the Canadian emblem—in their centers. There is an inscription in Japanese bearing the words “Canadian agricultural products and cold storage.” This device was arranged by Mr. W. H. Hay, who was responsible for the Canadian arch which aroused such interest in connection with the London street decorations at King Edward’s coronation celebration.

Beneath this artistic “roof” is what is described as the cold-storage case, with massive plate-glass windows and fittings made entirely of Canadian timber. In this case, which is 30 feet square, are shown perishable food products, such as butter, cheese, fruits, hams, bacon, etc. There are no fewer than 400 plates of luscious-looking apples on view, and 300 bushels more are stored inside in the cold chamber, so that the apples may be replaced from time to time. The refrigerating machinery adjoins the cold-storage case, and it will shortly be in working order in full view of the public.

To the right of the entrance the Canadian Pacific Railway Company has an exhibit which is perhaps one of the prettiest and most attractive in the exhibition. In a large tank, tinted to give the water a sea-green effect, floats a handsome model of an *Empriss* boat, with details all complete. Behind rise the hills as they are seen by the traveler through the Inland Sea, with real turf and tiny trees, in the midst of which are one or two Japanese houses. A little rill of water comes tumbling down the rocks into the sea and gives a slight movement to the water, causing it to lap against the little strand of shingle, while small junks float in the water and emphasize the fine proportions of the steamer. Above is a huge map showing the route of the Canadian Pacific steamship and railway service from West to East. The Canadian Pacific also show a section of a sleeping-car compartment, taken from one of their transcontinental expresses. Visitors can enter and examine this section, which appears so comfortable that it should induce a large amount of passenger traffic by the Canadian Pacific Railway route.

At the other side of the building a long counter has been erected. Here the bakery will be in full swing, an oven having been erected just outside the building, and an automatic mixer, which has been fixed within view of the public, is to be worked by electric power. The whole process of bread making will be demonstrated. An interesting exhibit is that of Canadian pulp woods arranged so as to show the various stages through which the pulp passes in the course of its transformation into paper of various qualities. There is a big display of pickled fruits in bottles from Ontario, Quebec, and Nova Scotia, and there are attractively arranged pillars of tins of corned beef, salmon, and other fish, bottles of grain samples, tinned and bottled fruits, honey, etc.

Arranged along one side of the building are a number of Canadian-made mirrors, chairs, and other articles of household furniture. There are samples of iron-work from Montreal, and everything is so attractively arranged as to compel attention.

Mr. W. Hutchison, the exhibition commissioner appointed by the Canadian Government, told me that this exhibit was purely an advertisement of Canadian goods; they did not expect immediate results from it, but it was thought that this would be a good opportunity of showing to the Japanese people what Canada was prepared to supply. They were in a position to import into Japan, on advantageous terms, flour, lumber, and pulp, together, of course, with other produce as

exhibited, according to the demand. But flour was their chief business. Their flour from Manitoba and the Northwest Territories would produce 20 per cent more bread per weight and 30 per cent more in size than could be produced with the same quantity of flour now being used. Canada was also prepared to send fresh butter to Japan, though the want of cold storage in this country put a difficulty in the way at present.

TRADE OF MANCHURIA IN 1902.

There are few sections that show a more general growth of trade during the past ten years than Manchuria. The increase in foreign imports for that period has ranged from 100 to 500 per cent, reaching the greatest volume during the year just passed, when the total export and import trade of Niuchwang was 60,595,367 haikwan taels (about \$40,000,000). The volume of trade has practically doubled in five years. The customs revenue for the year 1902 was 1,425,096 haikwan taels (\$910,000).

During the last year, large quantities of foreign goods were imported free of duty at Port Arthur and Dalny and were carried into the interior by railway as far as Harbin. This leaves a large amount of business unaccounted for by the customs returns, which for the coming year will give even less reliable data of imports and exports in Manchuria, as still larger quantities of goods are already coming in and going out at these two free ports. One shipment of 5,000 bales of cotton goods and large amounts of yarn have arrived at Niuchwang by rail from Dalny, and 2,500 bales of silk and large quantities of grain were exported during the first sixty days of 1903.

GROWTH OF TRADE.

The great growth of trade in Manchuria has resulted from the free exportation of beans, bean cake, and bean oil. The Chinese still restrict the export of grain. Manchuria is primarily a grain-producing country, having the soil, climate, animals, and the general conditions of farm life necessary for that purpose. Large tracts of productive land that are as yet uncultivated will grow grain in abundance, and railroad transportation is now at hand to carry the produce to market. If free exportation of all the products is provided for, the development of trade will for many years to come be as great as in the last decade. If, in addition to this, Manchuria had no import duties and its mines were developed, the province would show a growth of prosperity such as would astonish the rest of the world.

These conditions would result in providing a market for American goods which would increase our present trade in this section a thousandfold. This country is much nearer to the United States

than to any other of the great producing nations. Its trade is now largely in our hands, and, with unrestricted commerce, I can see no reason for our not continuing to maintain this supremacy.

KEROSENE.

Importation of American kerosene decreased from 3,172,000 gallons in 1901 to 603,180 gallons in 1902.

So far as the customs returns show, there is no accounting for this decrease by the introduction of any other oil, but the facts are that the predictions made in my last year's report* have been fulfilled, and Russian oil sold by the Russo-Chinese Bank in the interior cities of Manchuria is driving out the American product. An American firm, on account of the opposition of Russian oil dealers, has been unable to secure a site at Dalny for building warehouses in which to store American oil.

FLOUR.

The largest import of flour into this port was in 1901, to the value of about \$128,000. For 1902 it was some \$91,000. These figures, however, should not be accepted as indicating that less American flour is now being consumed in Manchuria than previously. Port Arthur and Dalny have been importing for several years four or five times as much flour as has this port, but the trade has not appeared in the customs returns, as there are no duties collected at those places. During the past year, considerable flour has been going by rail into the interior from the free ports, and I am convinced that if the facts were known they would show an increase rather than a decrease in consumption of American flour.

Several flour mills are now in operation at Harbin (one by the Russian Railway), where a fine quality of wheat can be purchased at 60 kopecks, or 30 cents gold, per bushel. This is one of the best wheat-growing sections of the world. United States newspapers state that the northwestern part of our country can produce wheat and flour and ship them 1,500 miles to Siberia at a profit. If excellent native wheat can be delivered in large quantities at Harbin for 30 cents gold per bushel with ancient methods and machinery, what can be done by these people when improved machinery is introduced, as I have no doubt it soon will be? To my mind, this great territory offers a better field for agricultural and flour-mill machinery than it does for flour.

Within a very few years Manchuria, from a consumer, will become a most strenuous competitor for our flour trade in the Asiatic markets; and modern flour mills are being established in other parts of China.

*ADVANCE SHEETS No. 1353 (May 28, 1902).

There are now three large mills at Shanghai, and more are in contemplation. One is in course of construction at Tientsin.

The depreciation in the value of silver has stimulated the flour-mill industry, the local price of wheat remaining the same in silver, while the selling price of flour has enormously advanced.

One of the Shanghai mills reports for 1902 a profit of 20 per cent on its capital stock.

Flour from these mills sells in this market at from 5 to 10 cents gold less per sack of 50 pounds than American flour.

COTTON GOODS.

The tremendous decline in the value of silver has stimulated the local production of cotton yarns and cloth, there having been no compensating advance in wages.

This is clearly demonstrated by the customs reports here. The imports of American drills declined from 546,598 pieces in 1901 and 584,877 in 1899 to 345,505 in 1902. The import of native-cloth nankeens was valued at about \$5,300,000 gold, an increase over 1901 of some \$800,000. These native nankeens, made from the yarn of Chinese mills and woven on handlooms, are used for clothing. They come into active competition with American drills, and that the increased value of the latter in silver has tended to restrict their use is evidenced by a decrease of over 200,000 pieces in the importations.

The following returns show the extent and value of the cotton-goods trade of Manchuria, its marvelous growth, and the possibilities of its further development:

Cotton goods imported into Niuchwang in 1902.

Description.		Quantity.	Increase in 10 years.
			<i>Per cent.</i>
Sheetings:			
Gray.....	pieces...	146,169	300
White, plain.....	do.....	100,610	400
Figured.....	do.....	100	
English.....	do.....	18,281	
American.....	do.....	1,090,152	400
Dyed—			
Plain.....	do.....	1,850	
Figured.....	do.....	1,524	
T cloths.....	do.....	20,962	
Drills:			
English.....	do.....	1,597	
American.....	do.....	345,505	250
Chintzes.....	do.....	663	
Turkey-red cambrics.....	do.....	7,073	
Velvets, etc.....	do.....	7,315	
Handkerchiefs.....	dozens...	78,861	
Towels.....	do.....	121,783	
Unclassed cotton goods.....	pieces...	378,063	500
Cotton yarn:			
English.....	pounds...	285	
Indian.....	do.....	210,075	50

	Gold.*
Total value of the above.....	\$8, 400, 000
Foreign goods in junks.....	5, 200
Native cotton goods in junks.....	5, 300, 000
Total imports for 1902.....	13, 705, 200

The trade in cotton goods for the last year shows a remarkably strong and healthy condition, the total being greater than ever before. For this year, I do not expect the importations to equal those of last year, on account of the great depression in silver.

RUSSIAN COMPETITION.

In view of the native competition and the efforts being made by Russia to capture the cotton-goods trade of Manchuria, especially in drills and sheetings, American manufacturers should look more closely after their interests in this market. Russian industries are encouraged by the Government in the form of bounties, drawbacks, reduced transportation on subsidized ships and railroads, etc.; and that it is the purpose of Russian manufacturers to imitate American goods and brands is shown by the following contract, made at this port, between a Russian official in the customs service and Chinese hong:

TRANSLATION OF CONTRACT.

This is a provisional contract made by —— hong for purpose of undertaking to sell American sheetings, drills, and cotton yarn in the provinces of Fengtien, Kirin, and Hei-lung-Kiang. It is agreed that the privilege of monopolizing the sale of these three kinds of goods shall not be given to any other dealers, nor shall any of the kinds be sold under an altered mark or chop in the provinces above mentioned.

When the specified large sample has arrived and is found to be coincident with the original specification, a proper agreement will be made as to the number or quantity of goods which —— hong undertakes to sell; also as to the period of the agreement and the price of the respective goods, as well as the system to be adopted in transmitting money, etc. In case the large sample is incorrect, this contract becomes null and void; but should there be no mistake in the sample, neither of the parties shall be at liberty to alter the provisions hereinafter stated:

1. The definite number of years the agreement is to run and the monthly quantity of goods which —— hong agrees to take shall be fixed upon the receipt of the large sample, after being convinced of its correctness.

2. —— hong orders the American sheeting under a chop of "double horses," with powderless and pure thread. The sheeting is to be 2 feet 6 inches broad (Chinese measurement†) and 105 feet long per piece, and to weigh 13 catties (17 pounds). Each package is to contain 20 pieces, be lined inside with one sheet of green oilcloth and one sheet of foreign paper, covered outside with hemp cloth, and wound with 9 rounds of white hemp cord.

The drills of "double dragon" pure thread, 2 feet 2 inches broad and 105 feet long (Chinese measure), are to weigh 13 catties a piece, with 15 pieces to the package, each package to be lined inside with one sheet of green oilcloth and one sheet

* Values are stated in round numbers.

† The Chinese foot is 14.1 inches.

of foreign paper, and covered outside with hemp cloth and 7 rounds of white hemp cord.

The cotton yarn, with a chop of "two men carrying tea bucket," 20 pieces to make a small bundle, is to be wrapped with hard paper and wound with hemp string; 40 bundles to make a package, covered with hemp cloth and 4 iron hoops.

The above-specified manner of packing is that to which the markets of the said three provinces have been accustomed. Any discrepancy will lead to depreciation of value and difficulty of sale.

3. It is agreed to take the 4th and 10th moon of each year as the date upon which to fix the price of the respective goods according to the Shanghai market, with a reduction of 25 per cent, the money to be paid in the currency of Shanghai sycee.

4. For conveyance of such goods to said provinces, ——— hong is free from paying custom duty, taxes, freight, and coolie hire, or any other expenses. This is mutually agreed to and no alteration can be made afterwards.

5. On the date of receiving goods, drafts at sixty days' sight for the amount due will be drawn against banks at Shanghai. In the event of the drawer being unable to meet his drafts on due dates, on account of the dull market in the northern provinces, he shall be at liberty to extend them a further period, at an interest of 8 per cent per annum. This is likewise mutually agreed to and no alteration can be made afterwards.

6. The quantity of goods to be taken and sold by the second party shall be according to the actual number of goods which is usually sold in the above-mentioned three provinces. On the other hand, the first party shall not sell similar goods in the same provinces, nor under modified chop through any other agency.

7. As the second party will have to furnish a large capital to carry on the enterprise, they deem it necessary to obtain protection of the authorities of the first party in the places in which they do business and to secure two proclamations to that effect, in Chinese and Russian, which shall be posted at the door of the second party.

8. Damaged goods and goods of inferior quality or variety or weight shall be carefully examined and settled for at a reduced price.

9. The goods above described are such as suit the markets of said provinces, and when the final agreement is entered into no change can be made as to the original provisions.

10. It will be at the option of either party to continue or discontinue the business at the expiration of the time agreed upon, but should it be continued a new agreement, in Chinese and Russian, shall be drawn up.

An agent of Russian manufacturers is here endeavoring, in connection with the Russo-Chinese Bank, to secure the trade in cotton prints. He has a very large selection of samples, and promises delivery in three months. The prices range from 12.5 kopecks (6.4 cents) per Russian yard (28 inches) for ordinary printed cambrics to 21 kopecks (10.8 cents) for fancy lastings.

The Chinese say that the character and quality of the goods are well suited to this market and are better than the American goods, and that they will sell if prices are low enough. The above quotations are not, however, sufficiently low to secure the trade.*

The imports of drills, jeans, and sheetings from the United States through Niuchwang amount annually to about \$4,000,000, and when

* Samples of Russian cotton goods, transmitted by the consul, are filed in the Bureau of Foreign Commerce, where they may be examined by those interested.

the quantity coming through Dalny and Port Arthur is taken into account, and the other kinds of cotton fabrics are included, I am convinced that our imports of cotton goods into Manchuria will amount to over \$4,500,000 per annum. Under Russian control of the customs, it is claimed that Russian goods would pass free and all others would pay the duty.

The Russian drills and sheetings are heavy and strong and entirely satisfactory, and if the Government provides a bounty sufficient to enable the manufacturers to meet the prices of American goods, the trade is likely to go into Russian hands. The same is true of Russian lastings, prints, cambrics, etc. The cloth is strong and the colors fast and bright. One sample order to the amount of about \$5,000 has recently been placed.

The trade of the United States in Manchuria is largely in cotton goods, kerosene, and flour. The total imports from America may be valued at \$5,000,000, or about 35 per cent of all foreign imports. They are far in excess of the purchases from any other country.

Russia is already strong in the kerosene trade and is planning to capture the flour and cotton-goods business as well. She has an agent, with the rank of consul-general, in Manchuria, who has great influence with the Chinese officials. Russian banks are doing business in all the principal cities and have commercial branches, which are engaged in buying and selling merchandise.

Government agents and Russian subjects are building flour mills, factories, and meat-packing establishments, and are opening mines and selling goods throughout Manchuria—privileges which Americans are not permitted to enjoy. It is therefore plain that Russia will in time practically dominate the commercial and industrial affairs of the province.

NOTES.

I would advise our manufacturers to establish an expert agent at Niuchwang and sell to the Chinese firms direct, instead of through Shanghai and Hongkong.

I attach a copy of the report of the commissioner of customs of Niuchwang for 1902 and of the port charges at Dalny; also a copy of schedule of the Siberian express for the summer of 1903, together with notes in regard to fares.

There are daily trains leaving Dalny for St. Petersburg which are slower than the express trains. They carry second-class passengers at 30 rubles (\$15.45) less than is charged on the fast trains. All passenger rates, however, will probably be changed. The second-class accommodations are considered very good, and many well-to-do people travel in that class. The compartments each hold four persons.

HENRY B. MILLER,

NIUCHWANG, *March 19, 1903.*

Consul.

SIBERIAN RAILWAY EXPRESS SCHEDULE.

We have received information that through trains of the Chinese Eastern Railway Company will commence on April 18-4, 1903. Until that date, trains with dining cars attached will be dispatched from Dalny to station "Manchuria" every Sunday; similar trains from station Manchuria will arrive in Dalny every Sunday.

In accordance with this arrangement, the Chinese Eastern Railway Steam Navigation Company has decided to run two fast boats every Sunday—steamship *Manchuria* to Nagasaki and steamship *Mongolia* to Shanghai. These two boats will be dispatched on their return trip on Thursday and arrive in Dalny on Saturday.

The fare in these trains from Dalny to St. Petersburg will cost:

	Rubles.
First class.....	267. 90= \$138
Second class.....	178. 60= 92

Every passenger has the right to carry with him 1 pood (36 pounds) of luggage free of charge; any surplus luggage will be charged for at the rate of 2.68 rubles (\$1.38) per every 9 pounds.

The whole journey from Dalny to St. Petersburg may be completed in fifteen days. The charges for the use of sleeping cars are included in the above-mentioned tariff. The dining cars supply passengers, for a certain charge, with tea, coffee, dinners, suppers, etc. Passengers change trains twice between Dalny and St. Petersburg—once at station "Missovaia," this side of Lake Baikal, and once in Moscow. Boarding in the dining cars averages about 3 rubles (\$1.50) per day. At present, these express trains leave Dalny once a week—on Sundays.

TEMPORARY PORT CHARGES AT DALNY.

Description.	Charges.	
	Rubles.	
Mooring alongside small wharf:		
For first day.....	10.00	\$5.15
For second day and each succeeding day.....	7.50	3.80
Fresh water:		
Direct from hydrant—		
Men-of-war and steamers of the railway sea-going service.....per ton...	.30	.15
Other vessels.....do.....	.50	.25
From the water boat—		
Men-of-war and sea-going service.....do.....	.50	.25
Other vessels.....do.....	.70	.36
For use of lighters:		
Wooden lighter.....per day...	6.00	3.09
Steel lighter.....do.....	20.00	10.30
For use of tug.....per day of 12 hours...	50.00	25.75
For use of rubbish lighter.....	Free.	
For use of floating crane with slings.....per hour...	25.00	12.87
For examination of ship's bottom by diver to order of master of ship.....	25.00	12.87
For coal delivered on board ship.....per ton...	13.50	6.78
For use of tug to moor vessel or tow into harbor.....	15.00	7.73

NIUCHWANG TRADE IN 1902—EXTRACTS FROM REPORT OF COMMISSIONER OF CUSTOMS.

Local trade.

Extreme cold marked the incoming of the new year. On the 5th of January was recorded the lowest temperature known in this port for many years, viz, -22° F. The ice broke up on the 11th of March and the first steamer of the season arrived on the 15th. The shipping activity, which was a feature of the year, displayed itself from the start. Over 11,000 Chinese passengers poured into the port by

steamer before the end of March. Labor seemed to be in high demand in Manchuria. Wages were offering in these provinces which must have looked like affluence to the poor inhabitants of Chihli and Shangtung. For the first half of the summer, imports arrived in large and exports left in fair quantities. The prospect was that of an unusually successful year. The anticipation, however, was scarcely realized. The sudden and violent fall in the gold value of silver which took place in the early part of the June quarter must have had a prejudicial effect upon the trade of foreign imports, and the fluctuations and uncertainty of the silver market no doubt detained for a time the operations of exporters to gold markets. Money seems to have been scarce in the interior of Manchuria.

The trade values of the year amounted to nearly \$40,000,000 gold.

In these days, when Niuchwang is more the cynosure of foreign eyes than it used to be, it is perhaps worth observing that this great body of merchandise passes almost entirely through Chinese hands. The trade of Manchuria is Chinese, and to all intents and purposes is Chinese only. Such measure of profit as may fall to the resident foreigner's share is only a side issue, as it were, from the great trade carried on by Chinese merchants. In Niuchwang the vast bulk of imports—foreign as well as native goods—and exports is dealt with by Chinese. The foreign merchant supplies the steamer shipping, does some banking, some insurance, imports some few commodities—such as coal, oil, and sugar—and invests in real estate and such local ventures as are available. The business of foreign store-keeping is also, though not entirely, in his hands; but all said and done, his share is only a trifle of the whole profits turned over in this port. The trade is and seems likely to remain Chinese.

A new and interesting departure during the year was the initiation of traffic under the inland-waters steam-navigation rules, a start in which was made soon after the opening of the season. Eight small steamers registered for the trade. They are mostly under the Japanese flag, and the average tonnage is 214 tons.

There was an enormous outturn of salt from the pans near the port, the dry summer having been advantageous to this industry.

Quite a severe epidemic of cholera broke out early in June, but, treated with modern methods, it was soon got in hand. The scourge, however, was sufficient to affect trade adversely.

Foreign trade.

Imports.—The gross value of the goods coming directly from foreign countries was 5,346,306 haikwan taels (\$3,471,000), which is the highest value ever recorded here of foreign goods coming in this way. Hongkong and Japan, between them, virtually monopolized the direct importations, Hongkong claiming 55 per cent and Japan 40 per cent of the whole. The lists afford satisfactory reading, as not only do what may be called necessities show expansion, but there seems also to be a growing demand in the three provinces for foreign luxuries. While this is accounted for to some extent by the considerable foreign element now domiciled in Manchuria, it may also be deduced that there is a constant change for the better in Chinese standards of living. Among cotton goods the most important article is cotton yarn—Indian and Japanese. The Indian variety increased by 20,000 pounds, but Japanese yarn arrived in almost precisely the same quantity as in 1901. Woolen goods and metals coming direct do not merit much notice. Growth is to be noted in the importations of china ware (fine and coarse), cigarettes, and coal, the last two items being principally for foreign use. Of the 108,713 tons of coal which arrived, 87,491 tons were for the railways. American flour, on the other hand, dropped to 43,258 pounds from 67,600 pounds in 1901. The demand for American flour is of comparatively recent growth. A few years back, the Chinese

found out that it was of far superior quality to and about equal in price with native-ground flour, and it speedily came into favor. The "red ear" is the favorite chop; it and one or more American brands are called the "correct brand," all other chops being stigmatized as "unclassed brands." These latter brands, however, in view of their cheapness, are coming in as serious competitors. Most of them are Chinese flour ground in Shanghai and elsewhere.

Two steam flour mills are at work at Harbin—one, owned by the Chinese Eastern Railway, has a capacity of 126,392 pounds daily and the other a capacity of 21,667 pounds daily. There is a number of steam and water flour mills in the southern Ussuri district, but so far their competition does not seem to have affected the importation of American flour. The limited import was due to the high price of flour in America during the year, as well as to the high silver price, due to the fall of exchange. The number of hides, cow and buffalo, coming in showed great augmentation. The fact is curious, as an effort is now being made to export hides from this port. An increased interest in personal appearance would seem to be betrayed by the arrival of 609,323 looking-glasses and mirrors, against 235,036 in the preceding year. The value of foreign medicines quadrupled that of 1901. Seaweed fell off, the supply of local vegetables being presumably fuller than usual. Another evidence of civilization appears in the ever-growing demand for soap. But still more significant of progress is the growth of the demand for sugar; 187,300 pounds of brown and 72,2000 pounds of white sugar having arrived during the year, the respective 1901 figures being 116,900 and 23,428 pounds. The Manchurian Chinese is said to eat "salt," in contrast to his southern Chinese brother, who eats "sweet." Salt is cheap in southern Manchuria, owing to the absence of the monopoly prevailing in China proper, which no doubt sufficiently accounts for its popularity. But with the growth of purchasing power, sugar is certainly becoming more popular. An interesting point arises whether the sugar beet could be grown in Manchuria. So far, the three provinces produce no sugar, and a fine field offers to the Hongkong refineries. But if soil and climate should be suitable for the cultivation of beet sugar, a new and valuable industry and source of wealth might be established. Should some enterprising capitalist start a venture in this direction, he might possibly find a profitable outlet for his money and energies.

Exports.—The value of native produce going directly to foreign ports during the year was \$5,650,000. These are again the largest figures known. Japan took 91 per cent of the whole, Hongkong being the next largest customer. As usual, beans and bean products constituted the bulk of this trade, their value being 88 per cent of the total. Comparing with 1901, we find augmentation in both bean and bean cake. Seed, sesamum, and silk, wild and raw, also progressed to a satisfactory extent. Junks did not carry any native products to foreign ports.

Indirect foreign trade.

The value of foreign goods coming by steamer from Chinese ports was \$8,450,000, the figures differing but little from the corresponding ones of 1901. Shirts, gray and white, give better results than any recorded during the past decade. American drills, however, declined heavily, only 343,855 pieces having been imported, against 546,123 and 584,877 pieces in 1901 and 1899, respectively. Of American sheetings, over 1,000,000 pieces passed the customs, these figures having been slightly exceeded only once before—in 1899. Woolen goods generally showed some improvement. Of lastings, plain and figured, 3,929 pieces were imported against 1,412 pieces in 1901; of long ells, 6,151 pieces against 4,730 pieces; of Russian cloth, 490 pieces against 264 pieces; and of Italian cloth, 3,339 pieces against 1,588 pieces.

The total quantity and value of metals imported is considerable. The Manchurian provinces require iron in great quantity, and will continue to do so until the day that their own large mineral wealth is exploited.

Among sundries, there is a remarkable decline in the importation of kerosene oil (American), which dropped to 603,180 gallons, in contrast with the 3,172,000 gallons which came in the previous year. This is the lowest importation recorded since 1896. The decline can not be attributed to loss of popularity; for, as with flour, oil is divided into two classes, "correct" and "otherwise," American kerosene being the "correct" brand. The reason is to be sought in its high silver price during the year, due to the fall in the gold exchange. The poorer class of buyer found foreign oil simply beyond his means. Though the bulk of the sugar imported comes direct, the coastwise arrivals were not insignificant, some 28,000 pounds of white sugar having come in, against 9,600 pounds in 1901.

Turning to native goods, the removal of the duty on books seems to have had a salutary effect, as \$16,000 worth of literature came in, against \$7,000 in 1901. China root and china ware, fine and coarse, made good progress in comparison with the year before. Coal arrived to the extent of 30,304 tons, against 8,655 tons in 1901. This is entirely Tongshan coal and it is used in hongs and houses, Chinese and foreign, here and inland. There is a growing demand among the Chinese here for coal, owing to the scarcity of firewood and the high price of millet stalk, and it is said that many of the wealthier Chinese are using foreign stoves. Flour, unclassified, grew greatly, 24,000 pounds having come in, against 3,600 pounds in 1901. This is due, as has been explained above, to the high prices of foreign flour. Native sugar does not seem to have suffered from the competition of the foreign article, as a large increase in white sugar is to be noted.

In the arrivals by junk, the chief article is cloth, native and nankeens, of which the great quantity of 230,500 pounds, valued at over \$5,000,000, arrived. This commodity alone represents in value 66 per cent of the import trade in junks. It is to be remembered that native cloth is spun, mainly from foreign yarn, in every Manchurian village, and also that a large quantity comes in by steamer. The consumption in these provinces is therefore very large. An interesting field of inquiry is how far foreign cottons can compete with the native article. Statistical comparisons are unobtainable, as the total production of native cloth in Manchuria is unknown; but a Chinese will say that eight-tenths of the cotton clothing used in these regions is native, two-tenths foreign. The native cloth is said to be stronger and to survive longer the drastic methods of the Chinese washerwoman; but foreign cloth is finer, gives a better appearance, and a respectable Chinese thinks it only seemly to appear with his outer garments made of it.

THE SIBERIAN FUR INDUSTRY.

The leading market for Siberian furs is Irbit, 1,000 miles east of Moscow and 150 miles east of the Ural Mountains and Nizhni Novgorod, where annual fairs are held. The fair at Irbit is held in February each year and that at Nizhni Novgorod in July and August. The former is much the largest and has just closed, the supply of fells consisting of bear, glutton, lynx, elk, reindeer, stag, musk deer, fox, sable, marten, mink, ermine, polecat, squirrel, Alpine wolf, and blue, silver, and red fox, and one or two kinds of wildcats indigenous to

Kamchatka. The Siberian black hare has become very scarce, as well as blue fox, which brings about \$50 per fell.

The supply was not equal to that of former years. The number of buyers from all the leading capitals of Europe and America increased and prices were higher, which is attributed in part to the fact that the world has adopted the American fashion of wearing furs outside, instead of as linings, which requires better skins.

Although a Russian company enjoys the monopoly of catching Alaska seals, they are all sold in London, and none are to be found in the Russian market. It is claimed by the leading experts that unless Russia, the United States, England, Canada, and Japan agree to put a stop to pelagic sealing, seal fells will disappear from the market.

Previous to September, 1902, Russian squirrel fells were only used as linings for ladies' shubas, but the demand at the Nizhni Novgorod fair during that year was so great that the price increased and the undressed skins (on which there is no duty in America) sell at from 10 to 30 cents each. It requires from 100 to 250 to make a jacket, 60 to 150 for a cap, 20 to 40 for a boa, and 5 to 10 for a muff. Pale squirrel tails are sold at \$2.63 a pood (36.112 pounds) and dark squirrel tails at \$3.13 per pood. White foxes are sold at \$6 each. Undressed sable skins sell from \$15 to \$200 each, and it requires from 50 to 100 to make a jacket, 30 to 60 for a cap, 2 to 12 for a boa, and 2 to 6 for a muff.

Sable and ermine remain the favorite furs with those who can afford to purchase the best.

Local merchants at Irkutsk purchase a considerable quantity of furs from hunters and trappers, as do all merchants throughout Siberia, which, if not shipped direct to Moscow and St. Petersburg, find their way to the annual fair at Irbit in February, where the leading fur houses of the world are represented by buyers.

ST. PETERSBURG, *April 3, 1903.*

W. R. HOLLOWAY,
Consul-General.

NOTES.

Trade of Liberia.—The following has been received from Minister Crossland, of Monrovia:

It is next to an impossibility to procure statistics regarding the trade of Liberia, as there are no printed data. The imports amount to nearly a million dollars. As nine-tenths of the civilized people are Americans by birth or descent, United States goods and wares are preferred to any others, but no United States steamer or trading vessel touches at Liberia. Holland, with a direct line of steamers and with commercial agents here, ranks first in commercial matters. Germany leads England in trade. Two steamers from Hamburg call at Liberia per week.

The chief products are coffee, ginger, palm oil, palm kernels, and cam wood. They have declined in price during the last few years. Rubber figures once more on the list of exports, and fiber is undoubtedly on the increase. The following statement shows the value of the commerce in certain districts for the fiscal year 1900-1901:

District.	Imports.	Exports.	Total.
Montserado	\$85,023	\$7,771	\$92,794
Grand Bassa	58,775	23,636	82,411
Sinoe	17,133	5,309	22,442
Maryland	29,278	10,940	40,218
Total	190,209	47,656	237,865

Transit Dues on Goods for the Transvaal.—Consul W. S. Hollis sends the following from Lourenço Marquez, April 25, 1903:

As the government of Cape Colony has abolished the collection of transit duties on goods imported in bond to the Transvaal via Cape ports, and as the government of Natal has reduced its transit rate to 1 per cent, the governor-general of Mozambique has declared that after April 27, 1903, all goods entering this port for transportation in bond to the Transvaal that are not already free of transit duty will be subject to a transit tax of 1 per cent instead of 3 per cent. All signs point to the abolition of transit duties in the near future throughout South Africa.

Under date of May 2, the consul reports that customs transit duties at that port have been abolished.

Railroad through Galilee.—The following has been received from Consul G. Bie Ravndal, of Beirut, under date of April 14, 1903:

The Ottoman Government has bought the English concession for a line of railroad from Haifa to Damascus. It is intended to build a railway through Galilee to Mzerib, by way of Beisan, connecting at Mzerib with the Damascus-Mecca line. On the 5th instant five German civil engineers, employed by the Turkish Government, arrived in Haifa, and on the 11th the vali of the province of Beirut unveiled a monument in commemoration of the beginning of operations. The estimated cost of this line from Haifa to Mzerib, by way of Beisan, is \$2,000,000. It is to be a narrow-gauge line (about 40 inches in width). The Damascus-Mecca line has now reached a point east of the Dead Sea. I have reason to believe that this railway, instead of running to the Hejjaz, including Medina and Mecca, will take from Ma'an a southwesterly direction straight to the Gulf of Akaba in the Red Sea. While the line will be built for strategical purposes, it can hardly fail gradually to develop the trans-Jordan country—hitherto another Tibet—by bringing it into touch with the outside world.

Greek Export of Currants.—Under date of May 6, 1903, Minister Jackson, of Athens, transmits the following statement with regard to the Greek currant trade from the beginning of the season (August 5, 1902) to the end of the month of February, 1903. The whole export amounted to nearly 223,000,000 Venetian pounds,* of which nearly 28,000,000 pounds, or more than one-ninth, went to the United States. England was the best customer, taking over 115,000,000 pounds; while both Holland and Germany took little more than the United States. The minister adds that an English syndicate† is negotiating with the Greek ministers for the purpose of obtaining the sole right to export currants from the country. They have not as yet been able to come to terms as to the price to be paid to the producers.

A report covering the same data has been received from Vice-Consul D. E. Maximos, of Patras.

Dividends of German Steamship Lines.—Consul Walter Schumann, under date of April 28, 1903, reports as follows:

The Hamburg-American Line declared a dividend of 4.5 per cent for the year 1902, as against 6 per cent in 1901. The North

* The Venetian heavy pound is equal to 1.05 American pounds; the light pound, to 0.6 American pound.

† See ADVANCE SHEETS No. 1634 (April 30, 1903).

German Lloyd decided not to pay any dividend for 1902; for 1901 the company declared 6 per cent. The German Steamship Company Hansa paid 6 per cent, as against 8 per cent for 1901. The Kosmos Company declared a dividend of 9 per cent for 1902, as against 12 per cent in 1901. The Hamburg-South American Steamship Company was unable to declare a dividend for 1902; for 1901 the company paid 4 per cent. The German East African Line, which paid 2 per cent for 1901, intends to declare 2.5 per cent for the past year. The German-Australian Steamship Company will declare 5 per cent, as against 8 per cent for 1901. The German Levant Line will be able to declare only 3 per cent for the past year, as against 6.5 per cent for 1901. The Bremen Steamship Company Argo is unable to declare a dividend for the past year; for 1901 it paid 3 per cent. The Bremen Steamship Company Neptune has declared a dividend of 5 per cent, as against 7 per cent for 1901. The Flensburg Steamship Company was unable to declare a dividend for 1902; for the year previous, the company paid 6 per cent.

New Docks near Strassburg.—Consul J. I. Brittain, of Kehl, under date of May 14, 1903, reports:

Extensive new docks, extending from the River Rhine, have been constructed on a large expanse of territory between Kehl and Strassburg. These docks are far enough apart to permit the building of large manufacturing establishments upon the intervening land. The docks are constructed of solid masonry and equipped with every facility for discharging vessels plying between Strassburg and the ports of Antwerp and Rotterdam. The construction of the docks has already resulted in the erection of several factories—a sheet mill, a large lumber yard and planing mill, and an extensive flour mill. The lumber company (H. Fuchs & Son) imports considerable pine from the Southern States. The flour mill is six stories high, will have a capacity of 160 tons of grain per day, and will cost over \$400,000. Wheat will be imported from various countries. Another flour mill of equal capacity will probably be erected in the same vicinity.

Exposition of Photography at St. Petersburg.—Under date of April 23, 1903, Consul-General W. R. Holloway reports as follows:

The St. Petersburg International Exposition of Photography was opened to-day. It consists of six sections, the largest and most interesting of which is the one devoted to artistic photography. It includes exhibits from France, Italy, Belgium, England, and America. Especially good photos are sent by the Parisian Photo Club, the

Turin, London, and New York camera clubs, and the Belgian Club of Amateurs' Photographs. Germany exhibits a beautiful collection of private photographs. The Russian section is well represented by the Moscow, Kazan, Samara, and Kief photographic societies, as well as by amateurs. The section of the photomechanical press proceedings is rich in exhibits of the St. Petersburg office for preparing Government papers, and of Angerer & Geshl, of Austria; Malvo, of Brussels; Unia, of Prague; and many other firms. Other sections are not less interesting, and give evidence of the great progress in photography during the last few years.

International Food Exhibition at London.—Under date of May 4, 1903, Consul-General H. Clay Evans, of London, transmits the prospectus of the International Food, Grocery, and Allied Trades Exhibition to be held at the Crystal Palace from August 29 to September 12, 1903. The industrial and commercial exhibits will be grouped under fifteen classes, seven for food preserves of all kinds and three for beverages, including natural and artificial mineral waters and nonintoxicating beverages. Group XI includes table decorations, kitchen utensils, silver, porcelain and glass ware, and table linen; Group XII, apparatus for brewers, bottlers, restaurateurs, bakers, butchers, and allied trades; Group XIII, hygienic clothing; Group XIV, social economy; Group XV, journals, newspapers, and books. Applications for space must give full name and address of applicant, stating frontage and depth of space required, with general description of exhibit. The charge for space inside the building will be 3s. (73 cents) per square foot, with a minimum charge of £3 (\$14.60). Payment to the extent of 50 per cent must accompany the application, the balance to be forwarded on or before August 25. Exhibitors will have to pay all expenses of conveying, delivering, arranging, and removing their exhibits, and also the cost of the erection of all fixtures, screens, and counters required. Goods may be sent directed to the care of the Crystal Palace Company, and communications addressed to the commissioner, 20 Victoria street, Westminster, London.

Moss Litter for Horse Bedding.—Under date of May 7, 1903, Consul F. W. Mahin, of Nottingham, reports as follows:

For several years the so-called "moss litter" taken from the British bog lands has been used as bedding for horses, large companies now rarely employing anything else. It is considered both economical and healthful. Compared with straw, its first cost is one-half or less, 1 ton of moss litter going twice as far, at least, as 1 ton

of straw. Moss litter is claimed to be a natural disinfectant, deodorizer, etc. The overpowering odor emitted by straw bedding when a barn door is opened in the morning is entirely absent from moss litter. Drains in stables, another source of danger, may be hermetically sealed, it is averred, where moss litter is used. Its absorbent quality is put at ten times its own weight in moisture. Moss litter is coming into use in many continental army stables and is being advocated for the British army.

Iron vs. Steel in British Shipbuilding.—Consul F. W. Mahin, of Nottingham, under date of April 27, 1903, says:

In iron-market circles, it is stated that iron is gradually displacing steel for shipbuilding purposes in the north of England. The prices of iron plates are quoted as 5s. (\$1.22) per ton dearer than steel, common iron being £7 2s. 6d. (\$34.67) per ton and the best welding steel plates only £6 17s. 6d. (\$33.45). Experience has shown, it is stated, that iron is less subject to corrosion from the action of salt water and the atmosphere than steel, and, consequently, the life of an iron ship is longer than that of a steel ship. Manufacturers are trying to produce lighter iron of greater tensile strength.

Horse Meat in Paris.—Consul Thornwell Haynes reports from Rouen, May 13, 1903:

It is stated that at the Villejuif slaughterhouses 23,000 horses are killed annually and at Pantin 7,500, making a total of 30,500. Of this number, 10,500 are consumed in the environs of Paris, leaving a consumption of 19,500 in the city itself. The average weight of each horse is said to be 250 kilograms (551.15 pounds). One-third of this, however, is composed of bone and sinew, sold as waste at 4 francs (77.2 cents) per 200 kilograms (440.92 pounds). There remains, therefore, about 167 kilograms (368.17 pounds) of marketable meat to each horse, which would give a total consumption of 3,256,000 kilograms (7,178,177.6 pounds) annually.

New Swiss Buttonhole Machine.—Consul-General O. J. D. Hughes reports from Coburg, May 18, 1903:

The usual type of buttonholing machines has been operated so that first one side of the buttonhole has been worked and then the needle mechanism or the fabric is readjusted to work the other side. A Swiss make works both sides of the buttonhole simultaneously,

which not only has the advantage of greater rapidity, but also of a simplified construction. The machine is provided with two needles, each of which, during the reciprocating motion of the fabric or of the needle mechanism, works one side of the buttonhole. In order to fasten the ends of the buttonhole, the distance between the needles is reduced, so that the stitches of one side emerge over those of the other side.

Almond Outlook in Spain.—Consul D. R. Birch, of Malaga, under date of April 28, 1903, informs the Department that the crop of Jordan almonds for next season promises to be normal for the first time since 1899. This means that approximately 100,000 25-pound boxes will be available for export, at prices considerably lower than those of last year. "Confectioner's Jordans," the size most in demand in America, he continues, were marketed in 1902 at from \$8.25 to \$10.50 per box f. o. b. New York; 75 per cent of the Jordan almonds exported to the United States are of this size. Reports indicate a large yield of the Valencia grade, which is considered inferior to the Jordan. It is stated that 2,000 boxes of 1902 Jordans remain unsold, but that the present price (\$9.85) is considered prohibitive by American buyers. It is likely, however, that the entire stock in the local storehouses will be marketed during the next month.

Vintage of Germany in 1902.—Consul Walter Schumann sends from Mainz, April 28, 1903, the following statistics of the vintage of the German Empire:

State.	Total area of vineyards.	Total quantity.	Total value.
	<i>Acres.</i>	<i>Gallons.</i>	
Prussia.....	45,308	11,253,959	\$4,386,791.58
Bavaria.....	54,829	11,717,075	3,009,406.21
Wurttemberg.....	41,577	4,954,984	1,719,654.96
Baden.....	43,697	10,969,078	3,095,762.29
Hesse.....	32,640	7,545,937	2,030,626.47
Alsace-Lorraine.....	76,944	18,665,856	4,769,376.41
Other German Federal States.....	1,333	293,651	86,246.82
Total.....	296,326	65,400,540	19,097,864.74

Medical Preparations in Hungary.—Consul F. D. Chester, of Budapest, under date of April 28, 1903, sends the following:

Supplementing my report of July 21, 1901,* I would state that on January 1 of this year a new order of the Hungarian Ministry of

*ADVANCE SHEETS NO. 1127 (August 30, 1901).

the Interior went into force, according to which private persons may import foreign medical preparations by obtaining a license from the chief officer of the local authority (mayor of city or vice-governor of county), who issues the same upon the advice of the local chief physician.

The prices of veterinary medicines were fixed by the Hungarian Ministry of Agriculture in an ordinance of December 3, 1902, which likewise went into force on January 1, 1903.

Exposition at Sivas, Turkey.—Consul M. A. Jewett sends the following from Sivas, April 18, 1903:

The local government proposes to have an exposition of native industries and products at Sivas next autumn. It will be something like our State or county fairs, and the first one of the sort ever held in this part of the country. I think it will afford an excellent opportunity to display American manufactures, particularly agricultural machines and implements. I would suggest that manufacturers send to the consulate large illustrated poster announcements of their products, and I will endeavor to have them placed where they will attract attention. Announcements in French would be more suitable than in English. Some Turkish writing might be added here. Registered post is the best method of sending advertising material.

The Osaka Exhibition.—Consul S. S. Lyon sends from Kobé, April 23, 1903, further newspaper clippings relative to the Osaka Exhibition, description of which appeared in *ADVANCE SHEETS* No. 1637 (May 4, 1903).^{*} In the display from Oregon, it is noted, 52 distinct establishments are represented. There is also an exhibit by Heinz, of Pittsburg, of pickles and other food products. The Japan Railway Company exhibits a railway train, with compartment, kitchen, dining car, etc. The Imperial Government Railway has a locomotive, one of two built at the Government works at Kobé in 1900 as an experiment. It is designed for heavy work and appears to have given great satisfaction. It is mentioned that if either of these two engines were required to be duplicated in Europe or America, it would be necessary to send the drawings, as they are not copies of any engine made abroad.

Bicycles in China.—Consul John Fowler, of Chefoo, under date of March 26, 1903, writes in regard to the need for a touring bicycle in China. It is strength, he says, that is wanted, not style or flimsy

^{*} See *ante*, p. 444.

adornments; the tool box should be complete, and the tools made of steel or some other metal not easily broken. There is a good demand for wheels among the Chinese, and a plain, strong, durable machine will sell widely at a remunerative price. He quotes from the North China News a statement in regard to the details of construction of wheels for the Chinese trade that was printed in ADVANCE SHEETS No. 1613 (April 6, 1903).

Automobiles for Touring in Canada.—Commercial Agent F. S. S. Johnson writes from Stanbridge, May 27, 1903:

My attention was called a few days ago to statements in United States newspapers that persons touring Canada in automobiles would be subject to a customs duty on their machines which would not be returned. The Canadian department of customs has announced that automobiles (not new) in use by tourists coming temporarily into Canada and not domiciled in Canada may be passed upon deposit of an amount equal to the duty, subject to refund upon exportation within the time prescribed by the collector, not exceeding six months from date of arrival. The automobile is not to be used for gain or hire in Canada, and an invoice showing the selling price thereof should be produced to the collector of customs as an aid to him in determining the amount of the deposit required.

Clearance of Merchant Vessels for Cuban Ports.—Consul-General F. Steinhart, of Habana, under date of May 5, 1903, transmits a circular respecting the clearance of merchant vessels for ports of Cuba, and especially for ports not declared open for export and import. The circular, which bears date of April 21, orders:

1. That clearances of merchant vessels shall be made solely to ports open for import and export.
2. That such authorized ports of the Republic are Habana, Matanzas, Cardenas, Sagua, Caibarien, Nuevitas, Gibara, Baracoa, Guantanamo, Santiago, Manzanillo, Santa Cruz, Tunas de Zaza, Trinidad, Cienfuegos, and Batabano.
3. All merchandise arriving in merchant vessels shall be landed at the authorized port or ports at which the vessel may arrive, and in case of importations of machinery or goods intended to benefit plantations or farms in any of the sounds, creeks, harbors, etc., within the customs district, upon suitable request, a special permit may be issued by the Treasury Department.
4. Any vessel leaving a qualified port to load national products at any harbor, creek, or port within the customs district may be cleared "foreign," with permission to enter said sound, creek, or harbor where it is intended to load said national products, carrying on board the number of inspectors that the collector of customs may consider required for due vigilance; all the extra expense incurred by said inspectors, as well as that necessary to return them to the port of their departure, to be on account of the vessel.

This order shall go into effect twenty days after the receipt of this circular at the principal ports for vessels arriving from the United States of America, Central America, Mexico, and the West Indies, and after forty days for vessels arriving from Europe and South America.

Legalization of Foreign Documents in Cuba.—Under date of May 5, 1903, Consul-General F. Steinhart, of Habana, transmits a decree (effective April 11) relative to the proper legalization of documents issued abroad, in order to have effect in Cuba, which provides:

ARTICLE 1. The legalization required by law, in order that public or official documents of all kinds issued in foreign countries by foreign officials shall have due effect in Cuba, must necessarily be made by a diplomatic agent or consular officer of the Republic, or whoever may substitute for them. Whenever the document shall have been issued in a country where there is no accredited diplomatic or consular agent of Cuba, it may be legalized by the diplomatic agent or any of the consular officers of the same country accredited to the Republic.

ART. 2. The signature of the official authenticating the legalization shall be also legalized by the Secretary of State or the director (chief clerk) of the Department of State. All notarial documents issued by the diplomatic agents or consular officers of the Republic, as well as their certificates referring to the register of the civil status of citizens, shall also have the same requirement.

Railway Project in Cuba.—Consul M. J. Baehr reports from Cienfuegos, May 6, 1903:

Capitalists of this city have under consideration the construction of a railroad from Caimanera, a town situated on the west shore of Cienfuegos Bay, to Cuatro Caminos, in the province of Matanzas. The length of the road will be 41 miles and the intermediate points will be the towns of Ponce, Matun, Guanál Grande, Managuago, Caoba, Aguada, Perseverancia, San Miguel, Amerillas, and Calimente. The section would derive great benefit from the construction of this road, as the products of the productive interior region would find an outlet through Cienfuegos. It is estimated that the export of sugar would be increased to the extent of 500,000 bags annually. The road would shorten the time for passenger travel between Cienfuegos and Habana from four to five hours, and would place Cienfuegos in direct communication with many outlying towns under its political jurisdiction.

Wine Trade of Cuba.—Consul J. C. Covert reports from Lyons, April 29, 1903:

In commenting upon the sales of wine to the people of Santiago de Cuba for the year 1901 (to the value of \$88,772.20), French wine

organs advise their readers to make an effort to capture this trade from Spain. The proximity of our vine fields to Cuba would seem to give Americans great advantage in this trade. Persevering efforts have been made to open a market for French wines in Japan, but they have all been fruitless; California holds the market. I can see no reason why the wine growers of New York, Ohio, and especially of California should not capture the Cuban market.

Proposed Patent Laws in Mexico.—Under date of May 16, 1903, Consul W. W. Canada, of Veracruz, says:

A bill has been laid before the Congress of Mexico providing that trade-marks shall be registered and patents for inventions granted without previous investigations respecting their novelty or originality. Petitions for registrations of trade-marks and applications for patent rights are to receive prompt attention, and measures shall be taken to effect a reduction in the charges made for such service. A special code of penal laws for the prevention of fraudulent uses of trade-marks, etc., and violation of patent rights is to be prepared. The law to be enacted shall be in accordance with the convention of Paris, March 20, 1883, that there may be no impediment to Mexico joining the International Union for the Protection of Industrial Rights.

Customs Duties on Small Shipments to Mexico.—Consul W. W. Canada sends the following from Veracruz, May 9, 1903:

The Government of Mexico, for the purpose of simplifying the methods of importing merchandise in small quantities for the use of the frontier population, has issued the following ordinance:

Merchandise in small quantities and intended for the use of the border population may be imported without the formality of a consular invoice or similar document, provided the value of said merchandise does not exceed the sum of \$10 in Mexican currency (about \$4.50 gold). At all points where revenue officers are stationed for international traffic an employee will be appointed to act as examiner and appraiser of goods intended for importation and to collect the amount of the duties levied. The importers of these goods shall produce them and shall make verbal declaration of the invoice value.

This ordinance went into effect November 1, 1902.

Cattle Market in Mexico.—Consul W. W. Canada writes from Veracruz, May 16, 1903:

The Mexican Government has conceded to Mr. William H. Alexander the privilege of establishing a permanent exposition and market for the sale of cattle, to be located within the limits of the

Federal District. The concessionnaire will invest not less than \$300,000 (about \$135,000 gold) in the enterprise. Accommodations are to be provided for 5,000 head of beef cattle, 10,000 hogs, 5,000 sheep and goats, and 1,000 head of horses, mules, etc., and construction must be completed within five years. The concession is for the term of fifty years.

Tariff Changes in Venezuela.—Consul E. H. Plumacher writes from Maracaibo, April 23, 1903, that a late decision of the Minister of Finance abolishes the duty of 5 centimes (1 cent) on imported cement. A great deal of foreign cement, adds the consul, is used in Venezuela. Another ruling places common cotton sailcloth, self-finished, not exceeding ten threads in the warp in a square of 5 millimeters (0.19 inch), in the fourth class of the tariff; above this, in the fifth class. Goods in the fourth class pay 75 centimes (14.5 cents) per kilogram (2.2 pounds); in the fifth, 1.25 bolivars (24 cents) per kilogram. A decree of April 13 abrogates the duty of 8 bolivars (\$1.54) per head on cattle exported.

Coffee Legislation in Sao Paulo.—The Department has received from Vice-Consul-General L. C. Irvine, of Rio de Janeiro, the text of the bill recently passed by the State legislature to promote the coffee trade, the provisions of which, as proposed, were published in ADVANCE SHEETS No. 1641 (May 8, 1903). The changes in the law as passed are, in brief:

An export tax of 20 per cent in kind, or of 300 reis per kilogram (about 7 cents per 2.2 pounds), on low grades shall be collected, the government to determine the classes subject to the tax. The government shall aid in the formation of agricultural associations, having for object to bring consumers and producers into more direct relations; it shall double the subsidy to steamship companies, referred to in the proposed bill; it shall encourage coffee-roasting concerns in the interior and superintend this industry; it shall institute a special stamp by which the quality of coffees from the State of Sao Paulo shall be authenticated. The government is also authorized to employ about \$6,000,000 in aid of planters.

Destruction of Fruit Scale in Uruguay.—Consul Albert W. Swalm writes from Montevideo, March 25, 1903, that a preparation known as "Frutolin," for destroying scale on apple, pear, and other fruit trees has been patented by a German chemist and fruit grower of that city. The wash was applied to some badly infected apple and orange trees, he says, and three days later a microscopical examination showed that the scale had been completely destroyed;

nor has it since reappeared, the trees now being in a healthy condition. Frutolin is inexpensive, averaging about 20 cents a tree; it is applied by means of a spraying pump and is not harmful either to the fruit or to people. The German Government has ordered, through its consulate at Montevideo, 300 liters (about 79 gallons) of the liquid for experimental purposes. Samples have also been sent to California for trial on the San José scale. Locally, its success has been most flattering.

Request for Trade Information.—The Bureau of Foreign Commerce has received from O. Obermeyer, of Stuttgart (Silberburgstrasse 125¹), Wurttemberg, a request for the publication of the fact that he is desirous of obtaining the names of United States manufacturers of all kinds of tools for saddlers, tanners, carpenters, coopers, cabinetmakers, turners, and butchers, as also of manufacturers of drills for wood and iron material, saws, edge tools, etc.

German Inquiry for Red Zinc Ore.—Consul E. A. Man, of Breslau, May 19, 1903, reports that he has an inquiry from a prominent local firm dealing in metals, ores, etc., for large quantities of red zinc ore, regardless of whether it is calamine, galmei, or blende, or what percentage of zinc it may contain, the important requirement being that it shall possess a purely natural red coloring. Anyone who can furnish such ore is asked to communicate with the consulate.

Request for Delinting Machines for Cotton Seed.—Consul-General Robert P. Skinner writes from Marseilles, May 11, 1903, as follows:

I am informed by Messrs. Bendit, Limburger & Co., 4 Rue des Princes, of this city, that they can probably effect the sale of a number of American delinting machines for treating cotton seed, and they have requested me to obtain the addresses of manufacturers of such devices, together with prices and other information. Correspondence may be sent direct to the firm named.

Wireless Messages from Moving Railroad Trains.—Consul-General Richard Guenther reports from Frankfort, April 25, 1903:

The Berlin Tageblatt publishes a message sent by its correspondent from a moving railroad train between Rangsdorf and Zossen, stating that on that day experiments in this line were made by the

Association for Wireless Telegraphy, Braun-Siemens system. During the journey a lively communication was held between the moving train and the stations of Marienfelde and Rangsdorf. The absolute reliability of the messages transmitted was proven.

New German Cable.—Consul J. F. Winter writes from Anna-berg, April 28, 1903:

On March 23 last, the German-American Cable Company commenced laying a new cable between Emden and New York by way of the Azores. It is expected that it will be completed by the end of the present year. Emden is the new German port which has the advantage of lying nearest to New York. This enterprise will tend to lessen cable rates, and will be a step toward the plan of making Germany independent of foreign cables.

Electric Tramway in Derby, England.—Consul F. W. Mahin writes from Nottingham, May 8, 1903:

The city of Derby (population about 110,000) has decided to substitute electricity for its present inferior horse-tramway system. The sum of \$440,000 has been appropriated for the purpose as a beginning. The length of road now contemplated exceeds 6 miles. The overhead trolley will be used.

Kerosene Pipe Line in Roumania.—Minister Jackson, of Athens, under date of April 13, 1903, reports that the Roumanian Parliament has appropriated the sum of 500,000 francs (\$96,500) for preliminary work connected with the building of a pipe line from Campina, in the petroleum district, to Constanza, the Roumanian Black Sea port, crossing the Danube by the railway bridge at Czernavoda.

Silk-Muslin Manufacture.—Consul J. C. Covert writes from Lyons that an experienced manufacturer of silk muslins wishes to go to the United States and put up a factory. He thinks that \$40,000 would suffice to start works, and if any town will furnish that sum he is ready to start at once. He calculates that his factory would pay a good dividend on \$100,000, and he would be willing to take about half the stock and its dividends in return for his time and labor.

Bonded Stores for Tobacco at Malta.—Consul J. H. Grout reports from Valletta, May 6, 1903:

American tobacco houses that deal with Malta will be interested to learn that by a recent proclamation bonded stores are to be allowed for local importers of tobacco. It is believed here that this will greatly facilitate business in this line, being a radical change over past regulations. Heretofore, the space for bonded imports under the complete control of the local authorities has been somewhat limited in area.

Pier at Smyrna.—Consul R. W. Lane, of Smyrna, April 17, 1903, says:

Arrangements are being made by the Ottoman Railway Company, of Smyrna, to extend a stone pier some 200 yards into Smyrna Bay. It is proposed to expend \$800,000 to \$1,000,000 in its construction, and it is estimated that two years will be required for its completion. This may be of interest to American contractors.

Proposed French Tariff on Wool.—Consul Thornwell Haynes writes from Rouen, May 13, 1903:

A prominent French Deputy has recently submitted a proposition to impose a duty of 10 francs (\$1.93) per 100 kilograms (220.46 pounds) on wool, of whatever origin. Wools in the suit are now exempt from duty, there being only an insignificant tax on products of European origin imported direct from the country of production.

German Request for Slag.—Consul J. White reports from Hanover, April 14, 1903, that Herr Ernst Hurtzig, of No. 17 Joseph Strasse, Hanover, desires quotations on Thomas slag, to be delivered f. o. b. Hamburg or Bremen, Germany.

American Pork in Turkey.—Under date of April 28, 1903, Minister Leishman, of Constantinople, reports that the prohibition of American pork, which has been in effect in Turkey for the past five years, has been removed and orders issued to permit entry under usual examination.

Grapevines in Hungary.—Consul F. D. Chester reports from Budapest, April 8, 1903, that the Hungarian Minister of Agriculture has prohibited the import of all foreign grapevines, graftings, etc., into Hungary, Croatia-Slavonia, and Fiume.

Request for Names of Whale-Oil Dealers.—Consul-General W. R. Bigham writes from Cape Town, April 6, 1903, that a whaling firm which wishes to sell from 4,000 to 8,000 gallons of whale oil per annum desires to get the addresses of parties in the United States who deal in this oil.

Venezuelan Duty on Pine.—Consul E. H. Plumacher sends from Maracaibo, May 8, 1903, the text of a recent decree by which the duties on logs of pitch pine of a thickness of more than 25 centimeters (9.8 inches) are abolished.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
Albertus Vinke, Amsterdam..	May 4, 1903	Emigration.....	Bureau of Immigration.
F. W. Hossfeld, Trieste.....	May 8, 1903	Hydrophobia.....	Marine-Hospital Service.
W. W. Canada, Veracruz.....	May 9, 1903	Sanitary improvements....	Do.
Do.....	May 20, 1903	Health statistics.....	Do.
W. F. Grinnell, Manchester..	May 7, 1903	.....do	Do.
F. W. Goding, Newcastle.....	Apr. 27, 1903	Wages.....	Department of Labor.
M. H. Twitchell, Kingston....	May 30, 1903	Crop conditions.....	Department of Agriculture.
E. Schneegans, Saigon.....	May 10, 1903	Rice.....	Do.
H. Bordewich, Christiania...	May 25, 1903	Electrical units.....	Bureau of Standards.

FOREIGN REPORTS AND PUBLICATIONS.

The Railway Network of Tonkin.—La Quinzaine Coloniale, Paris, February 25, 1903, says:

The work of extending the railway network of Tonkin is being carried on with unusual rapidity. Besides the 101 miles of line from Hanoi to the frontier of Quang-Si and the 63 miles completed from Hanoi to Haiphong, the railway line from Hanoi to Nam-dinh was inaugurated on January 8, 1903, making a total of 239 miles of railway now open to traffic. The opening of the line from Hanoi to Vietri, promised in a few weeks, will add some 39 miles more. On these lines Europeans are employed for the direction and superintendence, while natives are utilized for the rest of the personnel. In work of all kinds—earthworks, masonry, stone-cutting, adjusting, carpentry—the Anamites give evidence of their skill and intelligence. The new facilities of transportation and of communication offered to agriculture, commerce, and industry have increased the economic activity of the country beyond all expectations. New industries have been created, as the cement factory at Hanoi, the manufactory of lime at Hué, and the explosives works at Hanoi. Already the development of the country under the influence of the railway is such that the rolling stock is insufficient to transport the wood and cattle from the regions without the delta.

The importance of the forest wealth of Tonkin is seen in the last official statement: Out of a total area of 11,136,890 hectares (25,519,255 acres), 5,542,033 hectares (13,694,364 acres) are covered with forests; these are distributed very unequally. The six provinces, where the rich alluvial deposits of streams permit the cultivation of the soil, are entirely destitute of timber. Forests first appear in the provinces bordering on the delta, occupying 44,184 hectares (107,179 acres) or scarcely 6 per cent of the land; as one advances up the highlands, the acreage of forests increases, covering more than half of the land. It is proposed to create a corps of forest agents for the supervision of these domains. In other parts of Tonkin irrigation works are contemplated in order to make the cultivation, particularly that of rice, more intensive, more regular, and thus more profitable. These will be some of the results of the railway network which is only being begun in Tonkin.

Industrial Situation of Korea.—The following is summarized from a recent number of the Bulletin de Géographie, of Paris:

Properly speaking, there are only two special industries in Korea—the manufacture of paper and of hats. Korean paper is remarkable for its fineness and its power of resistance; it is made from the bark of a tree which grows in the southern part of the land. The bark, stripped off by steam, is reduced to pulp by washing and beating with a stick upon a large stone. The pulp is then spread out on linen cloth and washed with clear spring water, after which, placed in a wooden or stone vat, the juice of a plant whose flower resembles that of a cotton plant is mixed with it. When the pulp is suitably diluted, a screen is passed through the vat, which collects a thin layer of the pulp. The layers, or sheets, are dried in stoves. To make oiled paper, of which there are 14 varieties, a kind of colza oil is added. There are 53 kinds of Korean paper, costing from 1 cent to 33.7 cents per sheet. It

is in great demand and is used for writing and binding, for making window panes, for floor coverings, fans, rain hats and cloaks, etc.

The odd-shaped Korean hats are made of very finely braided bamboo stalks. The inside of the hat is made either of very tough thread or of horsehair, as is also the headband—the little apparatus upon which the hat proper is placed. Korean hats of the first quality cost up to \$15, the more ordinary ones \$3 to \$4, and the common ones \$1. There are other hats besides these, more simple, generally with wide brims and cone-shaped crowns, made from braided rice straw.

Besides these two local industries, there is also the manufacture of shoes from leather, straw, hemp, and even paper. The Korean dress, whether of linen or of silk, is always made at home by the women of the family. These garments are not generally sewed, but simply adjusted and glued. A cigarette factory has been completed at Chemulpo, but is not yet in operation. Near Seoul a rice-decorticating factory has been established but never worked. The Government proposes to install glass works there and has engaged Russians for that purpose. An attempt at silk culture has been made and discontinued; the same is true of a model farm.

The exports from Korea in 1901 were valued at about \$6,700,000 gold, an increase of \$190,000 over the figures of the previous year. The imports were valued at \$7,300,000, as compared with \$5,400,000 in 1900. At least two-thirds of the imports are Japanese. China supplies the silk; America furnishes petroleum and railway and mining materials; France, Italy, and America, food products and wine; and Germany, haberdashery and toys.

Cotton Cultivation in Tunis.—A late issue of the *Dépêche Coloniale*, of Brussels, says:

Decided advantages are offered by Tunis and also by southern Algeria as cotton-producing centers. The oases which the public works department of Tunis has created by means of artesian wells in the south of the regency have proved extremely fertile and yielded good returns. It is thought that these oases, with palms and other trees to shelter the cotton from the winds, should serve excellently for the purpose of the French Colonial Cotton Association. A report made to the Tunisian department of agriculture in 1900 states that samples of cotton had been collected at El Oudiane, El Hamma, and Nefta, and, moreover, that the better varieties grown at Gabès had been valued by Havre brokers at 50 francs (\$9.65) per 50 kilograms (110.2 pounds). The expense of transport per metric ton is estimated as follows:

	Francs.
Tozeur to Gafza (by cart).....	100 = \$19. 30
Gafza to Sfax (by rail).....	32 = 6. 17
Sfax to Marseilles.....	25 = 4. 83

Experiments should be made on at least 10 hectares (24.7 acres) in order to produce 2 tons for the market.

Russo-Persian Trade.—The Board of Trade Journal, London, April 30, 1903, says:

According to the official customs returns, the value of the imports into Russia from Persia and of the exports from Russia to Persia during the years 1890, 1895, 1899, and 1900, were:

Year.	Imports into Russia from Persia.		Exports from Russia to Persia.	
	<i>Rubles.*</i>		<i>Rubles.*</i>	
1890.....	10,783,228	\$5,553,362	10,895,880	\$5,611,378
1895.....	18,964,626	9,766,782	14,150,723	7,292,257
1899.....	21,606,374	11,173,633	17,859,000	9,197,385
1900.....	20,413,061	10,512,726	20,648,970	10,634,220

* Taking the value of the ruble, for purposes of comparison, at 51.5 cents.

The chief articles of import and export during 1900 were:

Article.	Value.	Article.	Value.
Raw cotton.....	\$2,364,728	Furs	\$299,631
Fruits, berries, fresh and dried.....	2,180,347	Sugar, refined and "mellis".....	3,953,810
Almonds and pistachio nuts.....	737,620	Cotton textiles.....	2,716,373
Rice, unhusked.....	634,033	White-sand sugar, refined.....	569,870
Fish of all kinds.....	498,637	Wheat flour.....	548,055
Undressed skins.....	411,989	Naphtha illuminating oils.....	249,967
Silk and semisilk manufactures.....	407,662	Tea	245,713
Woolen carpets.....	386,507	Glassware.....	210,180
Dressed skins.....	299,898	Manufactured metal goods.....	223,048

Commerce of Dahomey in 1902.—La Quinzaine Coloniale, Paris, April 10, 1903, says:

The commercial movement of Dahomey in 1902 amounted to \$5,936,591, an increase of \$873,904 over that of 1901. A very important fact, and one that should be noted, is that the greater part of this increase is due to the export trade. The imports for 1902 were valued at \$3,298,440, compared with \$3,040,261 in 1901, while the exports rose from \$2,022,431 to \$2,638,159, an increase of \$615,728 in 1902. This notable gain is due mainly to the export of palm oil and nuts. The export of copra also shows a gratifying increase. These exports were:

Description.	1901.	1902.
	<i>Met. tons.</i>	<i>Met. tons.</i>
Palm nuts.....	24,212	29,778
Palm oil.....	11,291	12,676
Copra.....	185	352

Rubber alone shows a diminution of 4,315 kilograms (9,513 pounds), which reduced the export to 3,472 pounds in 1902. The advance of the commerce of Dahomey will probably continue, thanks to the railway, of which 88 kilometers (54.6 miles) are already being worked and whose prolongation into the interior is being rapidly continued.

Nationalization of Swiss Railways.—According to a recent British Foreign Office report, three of the five great trunk lines of Switzerland were bought by the State about the end of 1901—namely, the Central Suisse, the Nord Est, and the Union Suisse. The purchase of the Jura Simplon Railway has lately been effected, and on

May 1, 1903, the whole concern was taken over by the Federal Government. With regard to the St. Gothard Company, the only line remaining to be taken over, it is stated that, although this will not occur until 1909, the existing concession will be denounced next year and the purchase price will be fixed on the basis of the average returns of the ten years preceding the denunciation—from 1894 to 1904.

Cuban Sugar for Europe.—The *Moniteur Officiel du Commerce*, of Paris, in its edition of May 28, 1903, says that a Liverpool firm has concluded a contract with a Cienfuegos house for the delivery in England of a quantity variously stated at 3,000 and 12,000 tons of Cuban sugar. The article notes that this is the first time for twenty-five years that the sugar of the island has been sent to Europe, except to Spain. Before that period it was much in demand on the other side of the ocean, but the bounties to beet sugar destroyed the market. The contract price is 20 francs (\$3.86) per 100 kilograms (220 pounds) on board ship at Greenock, and the freight is given at 20 francs per ton.

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ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, was transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

The publications formerly issued by the Bureau of Foreign Commerce will be issued in similar form by the Department of Commerce and Labor. They are as follows:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in

two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all the above-named publications are exhausted, and the Department is therefore unable to supply copies.

Beginning with 1890, reports on special subjects were published in separate form, entitled **SPECIAL CONSULAR REPORTS**. There are now the following **SPECIAL CONSULAR REPORTS**:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Vol. 26 (1903).—Briquettes and Fuel in Foreign Countries.

Of these **SPECIAL CONSULAR REPORTS**, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

Of the monthly **CONSULAR REPORTS**, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications available for distribution, copies are mailed to applicants without charge.

Persons receiving **CONSULAR REPORTS** regularly, who change their addresses, should give the old as well as the new address.

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1893, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, 1884-1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	\$0.96,5	Gold—argentine (\$4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc .....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis .....	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$3.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centesimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon (\$5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador † .....	.....do	Sucre.....	.48,7	Gold—10 sucres (\$4.8665); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland .....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,9).
France	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany.....	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling.	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma .....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti.....	.....do	Gourde.....	.96,5	Silver—gourde.
India ‡	Gold	Rupee .....	.32,4	Gold—sovereign (\$4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira .....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen .....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia.....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin .....	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$2 (\$2.02,7).
Peru | .....	.....do	Sol .....	.48,7	Gold—libra (\$4.8665); silver—sol and divisions.
Portugal .....	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶ .....	.....do	Ruble .....	.51,5	Gold—imperial (\$7.118) and ½ imperial (\$3.80); silver—¼, ½, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc .....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster .....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

| Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1898.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia	do	Dollar until 1880; bolivi- ano there- after.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	do	Peso .....	.96,5	.91,8	.....	.69,9	.68	.85
China	do	Haikwan tael..	1.61	.....	.....	.....	.....	.....
Colombia	do	Peso .....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador.....	do	do .....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt †.....	Gold	Pound (100 piasters)	.....	4.97,4	4.90	4.94,3	.....	.....
India	Silver	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold.....	Yen.....	.99,7	.99,7	.....	.99,7	.99,7	.99,7
	Silver .....		.....	.....	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡.....	Gold and silver.	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Peru.....	Silver	Sol .....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia	do	Boliviano .....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.49,1	\$0.42,4
Central America.....	do	Peso .....	.77,1	.69,1	.61,3	.51,6	.49,1	.44,4
Colombia.....	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador.....	do	do .....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee.....	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen .....	.83,1	.74,5	.66,1	.55,6	.52,9	.....
Mexico	do	Dollar .....	.83,7	.75	.66,6	.56	.53,3	.46
Peru.....	do	Sol.....	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§.....	do	Ruble.....	.61,7	.55,3	.49,1	.41,3	.39,3	.....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	.....

* See footnote to Austria-Hungary under Table A.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1	\$0.43,6	\$0.42,8
Central Amer- ica.	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China.....	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael...	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael...	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
Colombia.....	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do.....								
India	Silver rupee‡	.20,3	.20,7	.20,8					
Mexico	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol.....	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.		
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.
Bolivia.....	Silver boliviano.	\$0.41,3	\$0.40,3	\$0.38,2	\$0.38,4	\$0.36,1	\$0.35,2	\$0.38,4
Central America.....	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2	.38,4
China.....	Amoy tael.....	.66,9	.65,1	.61,8	.62	.58,4	.57	.62,2
	Canton tael.....	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8	.62
	Chefoo tael.....	.63,9	.62,3	.59,1	.59,3	.55,8	.54,5	.59,5
	Chinkiang tael..	.65,3	.63,6	.60,4	.60,6	.57	.55,7	.60,7
	Fuchau tael.....	.61,8	.60,2	.57,2	.57,4	.54	.52,7	.57,5
	Haikwan tael...	.68	.66,3	.62,9	.63,1	.59,4	.58	.63,3
	Hankau tael.....	.62,6	.60,9	.57,9	.58	.54,6	.53,3	.58,2
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.62,6	.59,5	.59,6	.56,1	.54,8	.58,3
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53,4	.59,8
	Shanghai tael...	.61,1	.59,5	.56,5	.56,7	.53,9	.52	.56,8
Colombia.....	Swatow tael.....	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6	.57,5
	Takao tael.....	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3	.62,6
	Tientsin tael....	.64,8	.63,1	.59,9	.60,1	.60,1	.55,2	.60,3
Mexico	Silver peso.....	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2	.38,4
Persia.....	Silver dollar.....	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3	.41,8
	Silver kran.....	.07,6	.07,4	.07	.07,1	.06,6	.06,5	.07,1

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

* *Foreign weights and measures, with American equivalents.*

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6097 bushels.
Are	Metric	0.02471 acre.
Arrobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Batman or tabriz	Persia	6.49 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333½ (1½) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2.6097 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2,5066 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4.9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	113½ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1403 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.8838 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21½ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pound.
Do.....	Philippine Islands.....	137.9 pounds.
Ple.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¼ pounds.
Sagene.....	Russia.....	7 feet.
Salm.....	Malta ..	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	do.....	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quintal (100,000 grams) equals 220.46 pounds.
 Millier or tonneau—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6418 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

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COMMERCE, MANUFACTURES, ETC.

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No. 275.

TRADE IN THE CANARY ISLANDS.

Trade in the Canary Islands has been about the same as in the preceding year; if anything, a fraction less. This can be attributed to general business depression; also in part to the fluctuation of exchange.

IMPORTS.

For the last two years the customs of the Canaries have been farmed out to a syndicate consisting of the principal merchants in these islands, the terms of the contract being that the Spanish Government shall receive an annual payment of 1,002,000 pesetas—equal, at present exchange, to \$150,300.

This company does not furnish any particulars as to exports or imports, and I am therefore compelled to have the manifests on file in the custom-house copied. As these do not give the origin of the articles imported, the latter are recorded as having originated in the country from which they were shipped.

There is direct communication between the Canary Islands and Liverpool, London, Antwerp, Marseilles, Genoa, Barcelona, and Cadiz. All goods arriving from these ports are entered at the custom-house as being imported from England, Germany, Italy, Belgium, France, or Spain, as the case may be, no matter what the actual country of origin.

The following articles are really of American origin, though not so recorded: Lard, ham, tobacco (leaf and manufactured), flour, and

cottons; also a large proportion of the canned goods, hardware, furniture, and perfumery imported.

It is practically certain that a direct line of steamers between New York and the west coast of Africa, touching en route at the Canary Islands, would pay. Details are given in *CONSULAR REPORTS* No. 264 (September, 1902). It has since been pointed out that such a line could have a port of call in Morocco. Mogador, the principal port on that coast, is only thirty hours from these islands. Morocco being a new and developing field, it would be easier to gain and hold a market there than in places where competition is already severe. Without direct communication, commerce can not be successfully pushed, and, as long as we have to depend upon foreigners to do the carrying of our exports to this part of the world, our trade will remain of comparatively small importance.

British and German firms have travelers here throughout the year. If American houses were to send representatives, the latter could advise when and how to ship; they could guard against delays in the delivery and could often insure the collection of drafts and promote our trade generally. During my stay here I have not seen a single American representative. Our goods get into this market by luck rather than by management.

Coal.—Teneriffe is chiefly used by passing steamers as a port of call for bunker purposes, and over 100 steamers a month put in with this object. Last year the business was not so good, showing a decrease of about 25,000 tons of coal. The difference is accounted for by the general depression of trade.

Petroleum.—All the petroleum imported at Teneriffe during 1902 came from the United States, some direct and the balance transhipped from Grand Canary in coasting vessels.

Lumber.—The United States sends nearly all the pitch pine used in the Canary Islands; Canada sends spruce, and Norway shooks for packing fruits. Of ten vessels bringing lumber here from the United States in 1902, only one was American.

Tobacco.—All leaf tobacco coming to the Canary Islands is of American origin, and the annual value is about \$100,000; it is imported via Liverpool and Hamburg. Manufactured tobacco also comes from the United States, except cigars, which are imported from Habana, and cigarettes, which come from Habana, England, and Egypt.

EXPORTS.

The exports declared for the United States and Porto Rico for 1902 show a decrease, the falling off being in onions (\$14,000) and potatoes (\$8,000). This is due to improved crops in our country in

that year. The principal articles of export from these islands are potatoes, tomatoes, and bananas; England provides the market for early fruits and vegetables. I annex a statement of exports declared for the United States, Porto Rico, and the Philippine Islands; also a statement showing the number of packages and value of fruit exported to England. To ascertain the total quantity exported from these islands, 10 per cent should be added to the above, this being about the proportion sent to other countries.

Almonds, wines, and pumice stone are also exported, but the trade is insignificant.

Drawn work, linen.—Of late this has developed into an important local industry, and the product is exported to all parts of the world. English and German houses have special representatives resident here, and it is estimated that 5,000 women are employed and that last year articles to the value of \$250,000 were exported.

Sugar.—The cultivation and refining of sugar has become one of the principal industries in the islands. A high duty—viz, 70 pesetas on 100 kilograms (\$10.50 on 220 pounds)—is imposed on imported sugar. It sells for from 104 to 120 pesetas (\$15.60 to \$18.00) per 100 kilograms, according to grade.

EMIGRATION.

In former years the emigration to Porto Rico and Cuba amounted to from 5,000 to 6,000 per year. This has recently fallen off, and during 1902 between 1,500 and 2,000 embarked.

CUSTOMS DUTIES.

Only a few articles pay duty in these islands, namely, sugar, liquors, spirits, tea, coffee, spices, and—a very low rate—tobacco.

IMPROVEMENTS.

The Belgian Electric Tramway Company has obtained a concession to extend its line towards Orotava as far as Tacaronte—6 miles. Work will be started immediately, and it is expected that the line will be in operation by the end of this year.

Work on the mole and breakwater is steadily advancing.

The harbor works at La Palma are making rapid progress, and it is confidently expected that they will be completed within three years. A coaling station will then no doubt be established, and as La Palma is more in a direct line between ports of Europe and of South Africa, Australia, and South and Central America than any other point of the Canary Islands, it will no doubt get a share of the business which now goes to Teneriffe and Grand Canary.

POST-OFFICE.

There being no money-order system in these islands, all money sent through the post is inclosed in envelopes and the value declared on the outside; the post-offices issue receipts and become responsible for safe delivery.

A parcels post was established in December between the Canary Islands, Spain, and Morocco. The public is availing itself of the system, the number of packages sent increasing every month.

TRANSPORTATION AND SHIPPING.

The following lines of steamships call at the Canary Islands:

British and African Steamship Company.	Union Castle Mail Steamship Company.
Forwood Bros. & Co.	George Thompson & Co.
Aberdeen Line.	New Zealand Steamship Company.
Shaw, Savill & Albion Company.	Transports Maritimes.
La Veloce Navigacion Italiano.	Messageries Maritimes.
Chargeurs Réunis.	Hamburg-South American Steamship Company.
Cie. Belge de Congo.	Woermann Linie.
Kosmos Steamship Company.	Folch y Cia.
Cia. Trasatlantica.	Pinillos & Co.
Societa Nav. e Industrial.	
African Steamship Company.	

The quickest way of shipping goods from the United States is by the Spanish Transatlantic Company, which has a steamer leaving New York on the 1st of every month for Cadiz, where goods are transhipped to another steamer of the same line, which arrives at Teneriffe the 18th of every month. Another way is by the White Star Line to Liverpool and thence by the African Steamship Company, the latter line having weekly sailings to the Canary Islands. Both of these lines issue through bills of lading to any port in the islands.

COST OF LIVING.

Nearly all the necessities of life cost more here than in Europe, and almost double as much as in the United States. There is an octroi tax on all eatables, as well as on fuel and lights.

Land that might be used for raising wheat, corn, etc., is given over to the cultivation of fruit; there is practically no grazing land whatever.

Farms with water, suitable for fruit plantations, bring £1,000 (\$4,866) per acre. Bananas, as picked, are sold for about 3s. (73 cents) per bunch; when packed in crates ready for shipment and brought to the wharf, from 4s. to 5s. (97 cents to \$1.21).

The number of steamers calling is so large that there is a great demand for local produce; every year, too, there is an influx of

several thousand visitors, many of whom are seeking health—these islands being considered an unrivaled resort, especially for sufferers from tuberculosis.

The following prices now rule:

Article.	Price.	
	<i>Peetas.*</i>	
Meat.....per kilogram (2.2 pounds)...	2.00 to 3.00	\$0.30 to \$0.45
Coffee (not roasted).....per pound...	1.60 to 2.00	.24 to .30
Butter.....do.....	2.50 to 3.00	.375 to .45
Sugar.....do.....	.60 to .85	.0875 to .13
Bread.....do.....	.25 to .35	.04 to .06
Milk, goats'.....per quart...	.70	.105
Eggs.....per dozen...	1.50 to 2.50	.225 to .375
Coal.....per ton...	60.00	9.00

* The peseta is figured at 15 cents, which is about its present value.

Fruit and vegetables are costly in proportion.

Manufactured articles are likewise expensive, as the selling price has to include freight, middlemen's profits, etc.

House rent is very high. There is a constant demand for new houses in Santa Cruz, and last year more than 150 were completed.

TRADE OF GRAND CANARY.

Consular Agent Peter Swanston says:

Paraffin oil was brought here from the United States last year to the value of \$73,000, but the greater part was reshipped to the west coast of Africa.

Lumber to the value of \$19,485 was imported; and general goods, to the approximate value of \$150,000. The latter consist principally of tobacco (Virginia), cooking stoves, mills for stripping maize, lard in buckets, Florida water, cotton goods, and some tinned provisions.

The total exports declared from Grand Canary to the United States from January 1 to December 31, 1902, were:

Cochineal	\$6, 129. 38
Drawn work, linen.....	5, 293. 04
Total.....	11, 422. 42

To Porto Rico, they were:

Chick-pease	\$16, 949. 78
Potatoes.....	3, 579. 63
Onions.....	9, 427. 08
Specie.....	662. 85
Total.....	30, 619. 34

Of the above, the cochineal and the drawn work, linen, all go to New York. The demand for the latter has greatly increased in the United States, and work to the value of \$5,292 was shipped in 1902, as against \$736 in 1901.

In a small market such as this, where the consumers are mostly of the laboring classes and the more wealthy are conservative and economical in their way of

living, there is small opportunity for pushing the sale of anything that is not one of the primary necessities of life.

Although the wealth of the island is rapidly increasing, owing to the large export of bananas, tomatoes, and potatoes to London and Liverpool and a considerable trade in shipping potatoes to South Africa, the requirements of the bulk of the population remain few and simple.

SOLOMON BERLINER,

TENERIFFE, May 20, 1903.

Consul.

Imports at Teneriffe in 1902.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Alcohol .....gallons...	1,420	4,415	300	70	2,100	1,200	300
Bacon .....tons...	3	3			5		
Beans .....do.....	62	93	210		620		763
Beds, iron.....do.....	5	4	1		14		
Beer.....liters*	110,612	170,452			4,430	6,000	
Birdseed.....tons...			2		9		40
Biscuits .....do.....	120	22		2	2		
Brandy.....liters...	175		1,420		392		
Brass .....tons...	31	21	2		1		
Brushes .....do.....		1	2		1/2		
Butter.....do.....	52	12	1	1	5		
Buttons .....do.....	2	1/2	1/2	1/2			
Caldrons .....do.....	34	1			4		
Candles .....do.....	220		1		10		
Canned fruits.....do.....	44		1		4		
Canned goods.....do.....	31		3		6		
Carpets .....do.....	4	1	5		15		
Cement .....do.....	210	62	581	25	125		3,200
Cigarettes.....do.....	4 1/2	1/2				5	
Cheese .....do.....	1	1	2				3
Chemical manures.....do.....	1,420	210	165	225	140		250
Chick-pease.....do.....	35		29		62		1,020
Coaches .....do.....	1		1				2
Coal.....do.....	212,000						
Cocoa .....do.....	1 1/2	3 1/2	1 1/2				
Codfish .....do.....	2	4					12
Coffee .....do.....	15	35					82
Corn .....do.....	128	5			10		3,156
Cottons.....do.....	115	5	2		42		10
Dates .....do.....	15		1	1	5		12
Drugs .....do.....	23 1/2	15	5		18		
Earthenware.....do.....	19	25	82		122		15
Eggs .....do.....					1		82
Fish, dried.....do.....	9	25			168		
Flour.....do.....	1,864		425				
Fruit, dried.....do.....	121	1			24		
Furniture .....do.....	12	30	2		41	2	
Gin.....liters*	3	3					4
Glass.....tons...	25	20	2		24		10
Glassware.....do.....	2	5	1		2		
Guano.....do.....	1,010	85			82		100
Ham .....do.....	18	4		1	2	1	
Hardware.....do.....	62	32	18		12	3	14
Hats .....do.....	1		2	12	1		
Hay .....do.....	51	2	10		12		80

* 1 liter=1.05 quarts.

Imports at Tenerife in 1902—Continued.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Ink.....liters*.....	3	2	1		1		
Iron, manufactured...do.....	152	62	12		24		
Jams.....do.....	15	1	1	1	12	2	1
Knives.....do.....		1					
Lamps.....do.....	1	1½	1		1		1
Lard.....do.....	140	12					
Lead pipes.....do.....	1				3		
Leather.....do.....	11	5	41	10	64		25
Lentils.....do.....			12				3
Machinery.....do.....	35	15	3		12		15
Maize.....do.....	320		162		242		4,725
Marble work.....do.....		1		20	9		
Matches.....do.....	14	13	7	21			15
Meat, canned.....do.....	1	1			2		2
Milk, condensed.....do.....	5						
Nails.....do.....	24	47	15		8		
Olives.....do.....					45		
Oil.....do.....	27	1	42	12	625		
Paints.....do.....	33	3	1		3		
Paper.....do.....	120	125	12	3	45		10
Perfumery.....do.....	1	1	6		1	3	
Petroleum.....gallons.....						112,250	
Porcelain.....tons.....	7	21	25		30		5
Pork.....do.....	35				4		
Preserves.....do.....	30		2		21	1	
Provisions.....do.....	82	1	4		21		6
Ribbons.....do.....		1	1	1	1		
Rice.....do.....	182	62		12	140		
Rope.....do.....	8	4	7	7	6		15
Rum.....liters.....	1				2	84	
Sacks, empty.....tons.....	24	15	5		12		8
Salt.....do.....	1		1		5		
Salt meat.....do.....	8	3		15		7	50
Sardines.....do.....			2		160		
Sausages.....do.....			2	5	15		
Sawdust.....do.....	262	528		140			965
Scales.....do.....	1	4	1		2		2
Seeds.....do.....	25	1	1		25	1	
Shawls.....do.....		2		2			
Shoes.....do.....	1				34		
Soap.....do.....	362	1	3		12		
Spices.....do.....	1		1		4		
Starch.....do.....	7	32	18		5		3
Steel.....do.....	1	3			2		
Stockings.....do.....	2	2	1		4		
Straw.....do.....	428	42			58		
Sugar.....do.....	1	1					
Sulphur.....do.....	1	1		75	240		
Tea.....do.....	2	1					
Textiles.....do.....	185		20	22	148		1
Thread.....do.....	5	1	1		3		
Tiles.....do.....			1,836	28		1,855	320
Timber.....do.....							
Tinware.....do.....	5						
Tobacco.....do.....	172	125				2	2
Manufactured.....do.....	4	1				5	
Toys.....do.....	1	3	1	1	2		

* 1 liter=1.05 quarts.

Imports at Tenerife in 1902—Continued.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Turf.....tons...	120						50
Varnishes.....do....	3	2					
Vinegar.....do.....	9	10			2		
Watches.....do.....	2	1	1	1			
Wheat.....do.....	225		227				423
Whisky.....liters...	26						2
Wickerwork.....tons...	1	1					10
Wine.....liters*	4,528	1,200	25,615	53,220	435,225		7,200
Wire.....tons.....	2	1			1		
Woolens.....do.....	8	5	3		2		
Wood.....do.....	320	250	1		2	3,728	4,630
Zinc.....do.....	2						
Horses.....number...					27		20
Oxen.....do.....					12		210
Sheep.....do.....							100
Poultry.....do.....							75,000

* 1 liter=1.05 quarts.

Export of fruit from the Canary Islands in 1902.

Article.	Quantity.	Value.	
		<i>Pesetas.*</i>	
Bananas.....crates...	1,656,876	9,941,256	\$1,421,599.60
Tomatoes.....boxes...	432,388	3,891,492	556,483.35
Potatoes.....do.....	234,966	1,174,830	168,006.90

* The average exchange value of a peseta in 1902 was 14.3 cents.

Exports declared from Tenerife to the United States, Porto Rico, and the Philippine Islands in 1902.

To the United States:

Almonds	\$328. 76
Cochineal	9,959. 12
Drawn work, linen.....	3,149. 79
Onion seed.....	2,572. 98
Total.....	17,010. 65

To Porto Rico:

Chick-pease	729. 35
Cumin seed.....	71. 90
Onions.....	3,330. 20
Potatoes.....	2,018. 38
Total.....	6,149. 83

To Philippine Islands:

Drawn work, linen.....	247. 20
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Premium on gold for the years 1901 and 1902.

Month.	Average.	
	1901.	1902.
	<i>Per ct.</i>	<i>Per ct.</i>
January	36	34.05
February	36.95	36.05
March	35	35.3
April	36.05	36.6
May	37.2	37.3
June	38.95	36.85
July	38.1	36.9
August	40.45	36.85
September	41.6	34.85
October	42.35	32.25
November	42.15	34.5
December	33.25	34.95
Average for the year	38.15	35.53

NOTE.—The highest point reached was October 10, 1901—45.1 per cent—and the lowest on December 10, 1901—30.5 per cent—showing a fluctuation of 14.6 per cent.

Shipping at Santa Cruz de Tenerife in 1902.

Nationality.	Sailing vessels.		Steamers.		War vessels.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Guns.	Number.	Tonnage.
		<i>Tons.</i>		<i>Tons.</i>				<i>Tons.</i>
Belgian			34	74,010			34	74,010
Colombian					1	12	1	
Danish			6	3,946			6	3,946
French			170	269,977	3	28	182	269,977
German			195	413,004			195	413,004
British	5	2,391	737	1,489,130			742	1,491,521
Dutch			4	3,926	3	25	7	3,926
Italian	2	1,783	58	126,939			60	128,722
Portuguese	1	192			1	5	2	192
Russian			13	8,713	1	3	14	8,713
Spanish	12	3,725	462	372,784	2	9	476	376,509
Swedish and Norwegian								
Uruguayan	4	1,495	15	11,602			19	13,097
American	2	926					2	926
Total			1	184	1	14	2	6,298
Total	26	10,512	1,704	2,774,215	12	96	1,742	2,790,841

NOTE.—The total number of vessels entered during the year 1902 was 2,851, including coasting boats of all classes.

Return of shipping at the port of La Palma, Grand Canary, during 1902.

Nationality.	Sailing.		Steam.	
	Vessels.	Tons.	Vessels.	Tons.
American.....	5	3,689		
British.....	6	2,328	1,338	3,542,500
Austrian.....	1	561	13	21,482
Argentine.....			1	2,520
Belgian.....			4	5,472
Dutch.....			21	37,884
Danish.....	2	935	18	26,461
French.....			98	286,775
German.....			227	473,324
Italian.....	2	956	70	145,864
Russian.....	1	478	13	20,419
Spanish.....	819	263,589	1,271	581,377
Swedish and Norwegian.....	6	2,184	27	58,319
Uruguayan.....	1	504		
Total.....	843	275,224	3,101	5,202,397

OPENINGS FOR TRADE IN ASTURIAS, SPAIN.

RAILWAYS.

The Compañia de Ferro-carriles de San Martin, Lieres Gijon-Musel, of Gijon, will receive proposals for the supply of materials for laying lines, and also for the construction of two hydraulic loading tips at the terminus at the port of Musel.

The Sindicato Asturiano del Puerto del Musel, of Gijon, will receive proposals for the construction of electric cranes and of three electric loading tips, the power to be obtained from the works of the Sociedad General de Productos Quimicos de Aboño, now in course of construction about 2 miles from the harbor.

The Compañia de Ferro-carriles Vasco-Asturiano, of Oviedo, is having a survey made between Lugones and Gijon, in order to construct a line to connect the latter city with the line from Ujo to the port of San Esteban de Pravia.

ELECTRIC TRAMWAY.

The Compañia de Tranvias de Gijon is preparing to change its horse traction to electric, and is open to receive offers of electric cars.

ELECTRIC-LIGHT STATION.

The Compañia Popular Ovetense de Gas y Electricidad, of Oviedo, has a project in hand to utilize a waterfall at Cangas de Onis, to generate power for the electric-light station at Oviedo.

ARTHUR LOVELACE,
Acting Consular Agent.

GIJON, May 9, 1903.

UNITED STATES TRADE IN BRITISH INDIA.

I give below a statement of the imports and exports of British India (exclusive of treasure) and the trade with the principal countries, showing the comparatively small amount imported from the United States during the past two years:

Country.	Imports.		Exports.	
	1900-1901.	1901-2.	1900-1901.	1901-2.
Total	\$244,089,232	\$260,706,614	\$333,313,594	\$387,856,201
<i>From and to—</i>				
United Kingdom.....	155,763,106	168,180,044	100,320,802	97,185,709
Austria-Hungary	10,037,892	12,607,097	8,663,796	7,603,462
Belgium	7,777,497	9,642,527	11,353,416	15,007,527
France	3,546,937	4,405,613	29,142,746	28,411,392
Germany	8,329,731	9,719,251	29,459,976	32,520,588
Italy	2,644,573	3,119,535	9,801,497	9,339,632
Russia *	19,086,182	10,195,729	778,744	672,771
United States.....	3,999,854	3,772,450	23,094,854	26,780,486

* The imports from Russia are principally kerosene oil.

More than one-fourth of the imports from the United States is kerosene oil.

From the above it will be seen that the United States is seventh in the list of exporters to India. The United Kingdom has about five-eighths of the trade; Austria-Hungary, Belgium, Russia, and Germany each send nearly three times as much as the United States, and France a small amount in excess.

It will be seen by the total amount of imports what a field India offers for our manufacturers and exporters. There is no reason why they should not compete successfully with those of Europe for this large trade, in many items of which they do not participate.

The only obstacle to the development of trade between the United States and India is the want of a rapid, direct steamship line, so that goods may be delivered within a reasonable time. It is true that there is a direct line of steamships to New York, but the ships touch at almost every port between Gibraltar and Calcutta, so that goods shipped via Liverpool or Glasgow arrive here quite as soon. If importers could rely upon quick delivery of goods, I believe that the trade would increase threefold within two years.

The demand for all kinds of electrical machinery, especially, is rapidly increasing, and American manufactures are generally preferred.

British and German houses have agents here and are pushing for the business. To secure a fair share of this large trade, our exporters should put energetic representatives into the field with samples of their goods. India has been neglected for markets nearer home, hence the small percentage of imports from the United States.

I know of no place that offers such inducements to our exporters of all classes of manufacture as Calcutta, the principal distributing point of India, whence a population of nearly 200,000,000 draw their supplies.

CALCUTTA, *May 13, 1903.*

R. F. PATTERSON,
Consul-General.

TRADE OF DENMARK IN 1901-2.

Official statistics have recently been published by the Statistical Bureau in Copenhagen, which afford an opportunity for a review of the trade of Denmark for the last two years. There is general complaint that times are dull.

The figures setting forth the value of the foreign trade of Denmark, however, do not indicate that the country is suffering. The lack of confidence which one hears so much about does not have any apparent effect upon the aggregate amount of the trade of Denmark with other nations. Denmark is an agricultural country, and nothing short of a failure in crops can, from an economic standpoint, cause any great disturbance in her equilibrium. So long as she can export butter to the value of \$35,000,000 annually, and horses, cattle, and pork to the value of \$25,000,000, as was done in 1902, she is bound to remain, on the whole, in a normal condition.

The following tables have been prepared from official statistics. They show the value of the total foreign trade of Denmark for the five years 1897-1901, the value of the domestic exports, and her imports for consumption for the year 1902. Statistics giving the total volume of trade for 1902 are not yet available.

Imports.

Year.	Imports for consumption.	Other imports.	Total.
1897.....	\$87,343,344	\$24,358,520	\$111,701,864
1898.....	98,443,904	25,430,788	123,874,692
1899.....	107,137,224	24,739,948	131,877,172
1900.....	111,534,632	29,648,572	141,183,204
1901.....	106,371,344	31,055,572	137,426,916
1902.....	116,716,680		

Exports.

Year.	Domestic exports.	Foreign exports.	Total.
1897.....	\$65,248,352	\$22,688,076	\$87,936,428
1898.....	63,924,700	23,540,048	87,464,748
1899.....	72,394,572	25,207,056	97,601,628
1900.....	75,553,220	29,923,540	105,476,760
1901.....	78,290,036	31,205,652	109,495,688
1902.....	85,829,680	.....	.....

Total foreign trade.

1897.....	\$199,638,292
1898.....	211,339,440
1899.....	229,568,800
1900.....	246,659,964
1901.....	246,922,604

A foreign trade aggregating in value \$247,000,000 (an increase of nearly \$50,000,000 in five years) is remarkable for a country of only 2,500,000 population. For comparison, it may be stated that the ratio of the population of Denmark to that of the United States is about 1 to 30, while the total foreign trade of the two countries is 1 to 10. In other words, the United States, with thirty times the population of Denmark, has but ten times its foreign trade.

From the above tables, it will be noticed that Denmark imports considerably more than she exports. In 1897 her imports were \$23,765,000 more than her exports; in 1899 the difference was \$34,186,000; in 1900, \$35,700,000. In 1901 there was an improvement, the adverse balance amounting to \$27,900,000.

Denmark, however, it should be remarked, carries on this immense trade herself, and the money paid for freight does not go into the pockets of foreigners.

SOURCE OF IMPORTS.

Four-fifths of the imports into Denmark come from five countries, namely, Germany, Great Britain, United States, Russia, and Sweden. The value of imports for the five years 1897-1901, from the five countries named, is given below:

Country.	1897.	1898.	1899.	1900.	1901.
Germany.....	\$34,652,668	\$35,831,868	\$38,659,804	\$41,156,224	\$39,529,116
Great Britain.....	21,120,276	26,046,116	26,939,042	28,968,924	23,562,292
United States.....	12,953,780	17,176,656	20,943,128	20,860,852	23,292,148
Russia.....	10,374,012	10,162,292	9,857,040	13,145,668	15,562,760
Sweden.....	13,842,200	14,114,220	13,835,500	14,077,504	12,701,324
All other countries.....	18,758,928	20,543,540	21,642,608	22,074,032	22,779,196
Total.....	111,701,864	123,874,692	131,877,172	141,183,204	137,426,916

The following percentage table indicates how the import trade of Denmark has shifted during the past fifteen years:

Country.	1882-1886.	1901.
	<i>Per cent.</i>	<i>Per cent.</i>
Germany.....	36.4	28.7
Great Britain.....	22.6	17.1
Sweden.....	14.2	9.2
United States.....		16.9
Russia.....		11.3
Total.....	73.2	83.2

The United States has, in the time indicated, sprung from obscurity to second place. The above figures show us as occupying third place; but when it is considered to what extent goods are shipped into Denmark from the United States via Germany and England and credited to those countries in the official statistics, it is seen that the United States unquestionably occupies at present a position second only to that of Germany.

The value of imports from the United States in 1896 was, according to Danish statistics, \$4,562,164; in 1897 it was \$12,953,780, and in 1901 over \$23,000,000. While there has been a healthy growth in our trade with Denmark, these sudden and enormous gains, as will be seen by an examination of the figures which follow, were in a comparatively few articles.

The first great gain was in 1897, when the increase over 1896 amounted to \$8,391,616, the total value of our trade being nearly trebled in one year. Seven-eighths of this gain was in three articles—maize, oil cake, and wheat.

In 1898 there was another material increase (\$4,223,000) in the value of our exports to Denmark. The gain, while more or less general, was confined particularly to four agricultural products—oil cake, rye, cotton, and wheat. There was also a large increase in the import from the United States of lard, oils, cast and wrought iron wares, cycles, and cycle parts.

For the two years 1899-1900 the value of our exports to Denmark remained practically the same. There was a falling off in 1900 of \$82,276.

In 1901, however, there was an increase over 1899—the banner year previous to 1901—of \$2,619,164, in spite of a marked decrease in the import of maize from the United States.

In 1899 Denmark took from us 870,774,000 pounds of maize, while in 1901 her purchases amounted to but 478,104,000 pounds, or a difference in value of \$3,146,000. This large loss was balanced by two articles, namely, wheat, in which there was an increase of

\$1,856,000 over 1899, and lard, the increase in which amounted to \$1,554,000.

The additional increase noted—\$2,619,000—was covered by three articles, namely, oil cake, oleomargarine, and pork, as will be seen by the following table:

Imports from the United States in 1899 and 1901.

Article.	1899.		1901.		Increase in 1901.
	Quantity.	Value.	Quantity.	Value.	
	<i>Pounds.</i>		<i>Pounds.</i>		
Oil cake.....	199,918,000	\$2,715,644	259,011,000	\$3,699,188	\$953,544
Oleomargarine.....	6,408,000	589,064	11,479,000	1,238,160	649,096
Pork (bacon, hams, etc.).....	2,621,000	179,028	9,989,000	1,072,392	893,364
Lard and other fats.....	13,606,000	838,840	21,774,000	2,392,436	1,553,596
Wheat.....	65,562,000	1,089,688	180,202,000	2,945,856	1,856,168
Total increase.....					5,905,768

IMPORT OF MAIZE IN 1902.

Danish statistics for 1902, when completed, will undoubtedly show a marked decrease in the value of imports from the United States, owing largely to the failure of our corn crop in 1901.

In corn and oil cake, Russia is our great competitor. When for any reason we can not meet the demand, Russia steps in. Of the 1,000,000,000 pounds of maize shipped into Denmark in 1899, the United States is credited with over 800,000,000 pounds and Hamburg with most of the remainder—which means that it came from the United States via that port, in all probability. Of the 656,000,000 pounds of maize shipped into Denmark in 1902, we furnished but 47,000,000 pounds, while Russia sent 431,000,000 pounds and the Danube countries 108,000,000 pounds. Practically all of this corn was loaded at Black Sea ports and brought to Copenhagen by Danish steamers owned by the East Asiatic Company, of Copenhagen.

The following table shows the total import of three principal articles of food for stock for the four years 1899–1902 and our share in the trade. Imports from Hamburg are also given, inasmuch as they come for the most part from the United States to Hamburg for transshipment to Denmark.

Imports of three articles of food for stock for the years 1899–1902.

Whence imported.	Maize.	Oil cake.	Bran.
1899.	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Total imports.....	1,029,000,000	370,000,000	144,000,000
United States.....	871,000,000	182,000,000	26,000,000
Hamburg.....	153,000,000	15,000,000	22,000,000

Imports of three articles of food for stock for the years 1899-1902—Continued.

Whence imported.	Maize.	Oil cake.	Bran.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
1900.			
Total imports.....	872,000,000	425,000,000	128,000,000
United States.....	669,000,000	200,000,000	16,000,000
Hamburg.....	183,000,000	12,000,000	10,000,000
1901.			
Total imports.....	621,000,000	496,000,000	109,000,000
United States.....	478,000,000	259,000,000	10,000,000
Hamburg.....	107,000,000	133,000,000	3,000,000
1902.			
Total imports.....	656,000,000	608,000,000	213,000,000
United States.....	47,000,000	256,000,000	30,000,000
Hamburg.....	50,000,000	15,000,000	24,000,000

Imports for consumption of three articles of food for stock for 1901 and 1902 and average value for 1897-1901.

Article.	Average value for 1897-1901.	Value for 1901.	Value for 1902.	Increase over 1901.
Maize.....	\$7,884,000	\$6,726,000	\$7,504,000	\$778,000
Oil cake.....	4,809,000	6,684,000	8,549,000	1,865,000
Bran.....	1,302,000	959,000	1,951,000	992,000
Total	13,995,000	14,369,000	18,004,000	3,635,000

There was an important increase in the total imports of oil cake in 1902, but a slight falling off in the imports from the United States. Russia supplied the increased demand for this article.

While the figures show that the aggregate value of our trade with this country fluctuates largely, according to the conditions of trade in a limited number of articles, it should also be remembered that Denmark is a very liberal customer in many other lines. It is true that of \$23,000,000 paid us in 1901, \$11,000,000 was for five articles, namely, oil cake, oleomargarine, pork, lard, and wheat; but a great variety of other goods was purchased with the remaining \$12,000,000. For instance, the demand for American-made shoes is steadily increasing; Danish business men write their letters on American typewriters and keep their cash accounts on American cash registers; the American bicycle is always popular; the American automobile is finding a place in this market—in short, American goods of every description, if reliable and up to date, find a ready sale in Denmark. The Danes enjoy the double advantage of knowing good things when they see them and of having money with which to purchase them.

RAYMOND R. FRAZIER,

COPENHAGEN, May 4, 1903.

Consul.

TRADE OF FUCHAU IN 1902.

Fuchau is situated on the Min River, about 30 miles from the coast. It is the capital of the province of Fukien and the residence of the governor-general of Min-che. Min-che includes the two provinces of Fukien and Chekiang and the large cities of Amoy, Fuchau, Hinghua, Fuching, Yenping, Shaowu, Wenchow, Ningpo, and Hanchow. It has a population of perhaps 55,000,000.

Both provinces are largely engaged in agriculture and fishing, their chief products being tea, rice, cotton, millet, wheat, barley, mulberry for silkworms, camphor, poppy, vegetables, oranges, lichee, beans, mushrooms, potatoes, groundnuts, langngans, bamboo shoots, and, in northwestern Fukien, immense quantities of timber (poles). The most important manufactures are silk, lacquer ware, soapstone ware, pottery, fans, lanterns, umbrellas, chopsticks, medicines, paper, joss paper, firecrackers, dried fish, opium, cotton goods, clothing, straw sandals, and embroidered shoes with paper soles.

Fuchau has a large navy-yard, a granite dry dock, and an arsenal, all of which belong to the province. These are located at Pagoda anchorage. There are also two arsenals at the city which are engaged in the manufacture of Mauser rifles, small smoothbore guns and gun carriages, and ammunition. The machinery and large tools used in these works were made in Germany and France.

Within the last year the old Foster Dock, with its shops, has been put in repair. It is now capable of accommodating small-draft vessels. Both dock and shops are operated by a British firm.

IMPORTS.

The value of most foreign imports in 1902 does not differ materially from that in 1901.

Cotton yarn.—Cotton yarn from India shows a gain of 1,000 piculs (133,333 pounds); Hongkong yarn increased 1,500 piculs (200,000 pounds); while the imports from Japan fell off from 4,388 piculs to 501 piculs (585,066 pounds to 66,800 pounds).

Opium.—In the revenue, the largest increase was on foreign opium—27 per cent. This article contributed 39 per cent of the entire revenue, as against 28 per cent in 1901.

Flour.—The importation of flour—mostly American—shows a total of 4,380,067 pounds, an increase of 613,000 pounds over 1901.

Kerosene.—American kerosene increased in imports from 10,210 gallons to 395,030 gallons and the Sumatra oil from 1,642,455 gallons to 2,445,700 gallons. On the other hand, Russian oil has

entirely disappeared from the market. American oil is now very expensive—\$3.40 Mexican (\$1.46) per case of 10 gallons—and, Sumatra oil being much cheaper, importation of the former will probably decrease during the coming year unless prices are lowered. The rate for American Comet oil is about 13 cents gold per gallon.

Cotton goods, etc.—Of cotton goods, American drills fell from 10,156 pieces to 4,759 pieces; chintzes, from 8,971 pieces to 6,398 pieces; Turkey-red cottons, 8,505 pieces to 6,610 pieces. Foreign buttons increased 6,000 gross and carpets 413 rolls.

EXPORTS.

Tea.—As the most important product of the province of Fukien is tea, it is interesting to note that the shipments to the United States amounted to 11,210,949 pounds, an increase of 4,586,600 pounds. This increase is due largely to the fact that big shipments were made to be held in the bonded warehouses in the United States until after January 1, when the duty of 5 cents per pound would be removed, and were in the nature of a speculation. Shipments to all other countries show a decline, notwithstanding the decrease of the Chinese export duty. There is a very decided movement in favor of manufacturing green tea, especially for the American market.

Potatoes.—Of white potatoes, 30,000 piculs (about 4,000,000 pounds) have been shipped from this port, much of which has gone to the Philippine Islands, either direct or through dealers in Shanghai or Hongkong.

MATCHES.

The English match factory, started in 1898, was closed during the past year. Its failure was due to the great expense of importing wood and chemicals from Japan and to the inferior quality of the manufactured article. The plant has been purchased by Messrs. Dodwell & Co., who have installed modern machinery and adopted new methods of preparing Chinese wood. They have also employed an expert American as superintendent, and are quite confident they can now rival Japanese matches in both quality and price.

Matches are extensively used by the Chinese, and there is a large and increasing market for them, as shown by the fact that, while the output of the Fuchau factory fell off from 187,050 gross to 15,650 gross, the import of Japanese matches during 1902 was 216,579 gross, against 160,650 gross for the previous year.

COAL MINING.

British and French prospectors have been visiting the coal fields in the northwestern part of the province, near Kiening and Shaowu, and in the southern part, back of Amoy; and a British company has

now commenced operations in the latter district, under grant from Peking, confirmed by the viceroy of Min-che.

The rules and regulations of the Fukien Mining Board are not thought practicable in their present form. Until the ministers of foreign powers at Peking act upon the general mining regulations which have been presented to them, these rules of subordinate provincial governments will not be considered as binding, except in the most general way, upon foreign capitalists who may wish to open mines. There will not, however, be any difficulty in getting modifications, as the high officials seem very willing to encourage mining operations. The British company above referred to has also received the privilege of constructing a railway from the mines to tide water, which in this instance will be to Amoy.

The coal found in this province is generally anthracite, but bituminous exists in some localities. There are opportunities for profitable investment of American capital in the mining operations in several parts of Fukien, and also for the construction of a railroad from Fuchau to Amoy in the south and to Ningpo and Shanghai in the north.

CAMPHOR.

The camphor forests in the northwest part of the province are a monopoly of the Chinese provincial government, which has established depots, where all persons are required to bring their camphor. Foreign dealers buy from these depots; they are not permitted to purchase direct from natives in the interior.

LIKIN.

Camphor may now be brought out under the transit-pass system, and an effort is being made by certain British tea firms to bring tea down to Fuchau under the same system, which requires only the payment of half duty in addition to the export duty to foreign countries, thus exempting the foreigner from the payment of the likin duties up country and all the way along the road to Fuchau. This is resisted by the provincial authorities, because they receive all the likin taxes, while the duties paid under the transit-pass system go mostly to the General Government through the imperial Chinese customs.

FOREIGNERS.

There are about 700 foreigners living in this consular district, seven out of every eight of whom are engaged in missionary work and connected with the families of missionaries. They are widely scattered through the district, some being 250 miles from Fuchau. The Christian denominations represented are the American Board Mission, American Methodists, Roman Catholics, and English Church

missions, each of which has had representatives at work in this district for over fifty years.

EDUCATION.

Educational and medical work have received the greatest attention. Two large high-grade colleges in Fuchau, conducted by the Methodist Church and the American Board, have received most encouraging support from the officials and well-to-do classes. Entrance to these institutions is at a premium, in consequence of limited facilities. The Methodist Mission, including five large buildings and two more soon to be erected and the grounds on which they stand, has been purchased with funds contributed entirely by the Chinese. The course of study in this school, as well as in that of the American Board Mission, covers five years. One of the greatest difficulties the missionaries in charge meet with is that the Chinese officials are continually making offers of liberal salaries to students who have been in these institutions two or three years and have obtained a fair knowledge of English, for service in the yamens, customs and telegraph service, arsenal, docks, etc., which cause many of them to leave before graduating. Students from these schools are now serving all over China, from Peking to Canton, and even in Singapore, Borneo, Sumatra, and the Philippine Islands. Some 500 primary schools have been established in this district, most of which are feeders to the higher grade schools above mentioned.

SAMUEL L. GRACEY,
Consul.

FUCHAU, *March 26, 1903.*

TRADE IN NORTHERN BRAZIL.

RUBBER.

The total shipments of rubber from Para from July 1, 1902, to May 1, 1903, have been 26,040 tons, as against 26,655 tons during the same period of the preceding season. The shortage is due to the troubles in the Acre territory. The crop, however, lacks but a few hundred tons of equaling that of last season, which was the largest ever known.

BRAZIL NUTS.

The total amount of nuts shipped from the Amazon Valley so far this season is 3,953 tons, and has been about equally divided between Europe and the United States. Estimates for the remainder of the season vary greatly. Certain sections which have generally supplied large quantities of nuts have sent very few, owing to the

opening of new rubber fields in their vicinity, which are more profitable to the Indians than the nuts. Up to date, the crop of this season is 15 to 20 per cent less than that of last year. The average quality of the nuts has been excellent.

CACAO.

The cacao crop is just beginning to come in freely. So far the quality is good and the quantity well up to the average; but no estimate can be made as yet as to the size of the crop this season. While Europe—especially France and the Netherlands—still takes the greater portion of this crop, the United States is every year increasing its imports of this staple.

IMPORTS FROM THE UNITED STATES.

Trade between the United States and northern Brazil is growing, despite depressed conditions here. One steamer from New York recently brought 15,000 barrels of flour and 12,000 cases of kerosene. Another item worthy of mention is the recent arrival of 1,200 barrels of machine oil for ships, etc., consigned to a local firm; also a large cargo of rosin. I note a growing demand for American canned foods. Our cotton goods are finding favor in this market, especially prints, calicoes, plaids, and ginghams. The imports of machinery and machinery tools, marine supplies, sawmills, sugar mills, and general hardware from the United States are steadily gaining, although our manufacturers do not give as easy terms as their European competitors. The Collins Company has an enterprising representative in this territory who is making a canvass of the entire valley as far as Iquitos, Peru.

K. K. KENNEDAY,

PARA, May 7, 1903.

Consul.

PHOSPHATE CONCESSION IN BARBUDA, WEST INDIES.

Consul W. R. Estes sends from Antigua, June 1, 1903, copy of a notice of tender for a concession to mine phosphate in the island of Barbuda, issued by the colonial secretary. The consul adds:

Barbuda is a small island about 28 miles northwest of Antigua, and is reached by sailing vessel from this port. It is reported that rock on the island contains 50 to 80 per cent of phosphate, but the extent of the deposit is unknown.

The notice reads:

Tenders will be received up to the 1st of October, 1903, at the office of the colonial secretary, Antigua, for a concession to mine phosphate of lime or of alumina in the island of Barbuda, subject to the following conditions:

1. The tenderer shall state the royalty he is prepared to offer per ton of phosphate exported.

2. The tenderer shall be allowed to cut firewood for the purposes of working this concession within the island at a royalty of 1s. (24.3 cents) per cord (measuring 8 by 4 by 4 feet), provided that such wood shall only be cut on areas indicated by the manager, and that no timber or brushwood having a value for other purposes than that of firewood shall be cut under this concession.

3. The tenderer shall be allowed to have a site for a wharf and storage on the lagoon not exceeding 10 acres, at the yearly rent of 5s. (\$1.21) an acre, provided that such site shall be beyond half a mile from the limekiln in front of the "Great House."

4. The tenderer shall have power to lay tramways to facilitate mining operations, subject to the right of the government to prescribe the route to be followed and the precautions necessary as regards gates, fences, and crossings.

5. The concession to be for the period of twenty-one years.

6. Preference to be given to the tenderer offering the highest royalty, starting from 9d. (18 cents) per ton exported as the "upset" price.

7. The concession to be voidable at the option of the government if less than ten men are constantly employed thereon, or in case of any transfer of the concession, direct or indirect, wholly or in part, without the previous sanction of the government.

8. The acceptance of tenders received shall be subject to the final approval of the secretary of state, and the government does not bind itself to accept the highest or any tender.

REGISTRATION OF PATENTS AND TRADE-MARKS IN CUBA.

The Department has received from the legation of Cuba at Washington, under date of May 27, 1903, translation of the instruction regarding the procedure to be followed for the deposit in Cuba of trade-marks and patents granted abroad, as follows:

For the deposit and resulting protection in this Republic of any foreign patent, the party in interest shall apply therefor to the Department of Agriculture, Industry, and Commerce of the said Republic, personally or through an attorney, and deliver a certified copy of his inscription in the country of origin, with the respective explanatory memorial. The signature of the commissioner of patents or of the head of the office in the country of origin by whom the said copy is attested shall be authenticated in the form prescribed by decree No. 48,* dated April 17, 1903, of the President of this Republic, in order to be valid at law. These documents shall be accompanied by a translation of the same into the Spanish language, made or subscribed by any one of the notaries public of the Republic authorized to that effect, or by its diplomatic or consular officer residing at the place whence the said documents come. These documents, as well as the plans of the patent, shall be submitted in duplicate; the second copy of the translation may be signed by the party in interest. If the patentee wishes to request the deposit of his patent in this Republic through a third party, he shall forward at the same time the corresponding power issued in favor of the person that is to represent him. In order to have legal value, the power of attorney shall also be authenticated in the form above indicated. After the acceptance of the deposit in this Republic, if it takes place, notice of such acceptance shall be given to the applicant (patentee or attorney), so that he may remit to the bureaus of revenues and taxes of the fiscal zone of Habana the dues, amounting to \$35 in United States currency, and upon presentation in the Department of

*ADVANCE SHEETS No. 1664 (June 5, 1903).

Agriculture, Industry, and Commerce of the receipt that shall be delivered by the aforesaid treasury bureau, there shall immediately be issued a certificate of deposit of the patent, dealt with in the name of the patentee.

In the case of marks of all kinds, industrial designs, etc., the procedure will be practically the same as for the deposit of patents. The only difference is that the amount of dues in such cases is reduced to \$12.50 in United States currency, and that after the deposit shall have been accepted, and before the certificate of the said deposit shall be issued, the applicant shall submit five additional copies of the corresponding diagram of the mark or industrial design. In order to expedite such matters in the Republic of Cuba, it is recommended, for convenience' sake, that some person be appointed here with sufficient powers to attend to them in this city.

Approved.

MANUEL DIAZ.

The following explanatory statement is also inclosed:

The authentication of patent documents, of the United States and other countries, which it is desired to deposit in the Republic of Cuba for the purpose of protection, is required only for one of the two copies that must be presented for deposit, the second copy being a mere transcript of the first and signed by the applicant or his attorney; the certification by the proper public officer of the translations into the Spanish language of one of the copies that are to accompany the originals in the foreign language will also be sufficient. For marks, industrial designs, etc., the same procedure must be followed—that is, the five additional copies of the corresponding diagrams, as they have been registered in the patent office of the country of origin, must be delivered after the granting of the deposit.

SUGAR PRODUCTION OF CUBA.

Under date of May 29, 1903, the Department has received from Minister Squiers, of Habana, the following statement of sugar exported and sugar on hand up to April 30, 1903, compared with like period of 1902, in bags of 320 pounds each:

Port.	1902.		1903.	
	Exports.	On hand.	Exports.	On hand.
	<i>Bags.</i>	<i>Bags.</i>	<i>Bags.</i>	<i>Bags.</i>
Habana.....	81,552	705,193	181,226	530,682
Matanzas.....	59,529	805,570	304,047	701,077
Cardenas.....	118,007	815,768	316,794	750,473
Cienfuegos.....	395,931	273,155	660,976	201,075
Sagua.....	38,326	213,112	162,817	121,148
Caibarien.....	49,426	216,276	71,388	334,557
Guantanamo.....	113,847	152,425	187,259	101,588
Manzanillo.....	91,890	44,930	204,631	38,900
Nuevitas.....	61,750	61,856	53,420	22,660
Gibara and Puerto Padre.....	117,322	61,010	152,320	17,313
Zaza.....	8,052	15,230	7,730	10,835
All other.....	29,643	21,552	58,789	31,550
Trinidad.....		59,940	35,369	27,241
Total ..	1,165,365	3,446,018	2,396,766	2,789,099
Total tons*.....	116,481	492,483	342,395	398,442

* 1 ton = 2,240 pounds.

Recapitulation.

Description.	1902.	1903.
	<i>Tons.</i>	<i>Tons.</i>
Total exported and on hand.....	658,769	740,837
Local consumption for 4 months.....	14,050	14,880
Total	672,819	755,717
On hand January 1 (preceding year's crop).....	19,873	42,530
Received at ports up to April 30.....	652,946	713,187

This year's production of sugar in the district adjacent to Cienfuegos, it is stated, will be considerably less than was figured at the commencement of the grinding season, owing to the unseasonable rains in the months of January and February. It is estimated that the production will nevertheless exceed that of last year, as the following figures will show:

There has come into Cienfuegos from January 1 up to April 25, 1903, 714,113 bags, against 697,796 bags in 1902. From January 1 to April 25, 1903, 569,900 bags have been exported, against 420,931 bags in 1902. There was in store April 30, 144,213 bags of the sugar that has come into Cienfuegos since January 1 to April 25, 1903, against 276,865 bags in 1902.

On account of the inclement weather in January and February it will be impossible to grind all the cane standing unless the wet season should fail to set in at the usual time. As far as the harvest is concerned the Cuban planters have reason to be satisfied with this year's crop.

BRIDGE OVER THE ARIMAO RIVER, CUBA.

The largest bridge yet constructed in Cuba was completed and opened to the public on May 15. It is 20 miles from Cienfuegos, on the road to the Manicaragua Valley, the tobacco-growing belt of Santa Clara Province.

The bridge spans the Arimao River and is 454 feet in length, with a width of 17 feet. It has two piers and two abutments of hydraulic concrete; Atlas cement was used, and granite for stone capping. The piers are 35 feet above the normal stage of water, and the flooring is of native hard woods—mahogany, black jucaró, and sabicu. It is a steel bridge, of the Pratt riveted system, made by the American Bridge Company, of New York; 11,000 rivets were driven in Cuba.

The contract was let February 13, 1902, at a cost of \$50,000. The work of construction was somewhat retarded by floods, which twice carried away the supporting works.

Manicaragua Valley is 36 miles northeast of Cienfuegos, but

there will soon be a well-graded and macadamized highway covering the greater part of the distance; and this, in connection with the bridge, opens up to settlement one of the most fertile regions of the island, as the Manicaragua tobacco is said to excel that of Vuelta Abajo in aroma.

The completion of this bridge not only marks an epoch in the development of this section of the island, but is also highly appreciated by those having occasion to use it, because traffic was sometimes suspended for thirty days before construction on account of floods in the Arimao.

CIENFUEGOS, *June 2, 1903.*

MAX J. BAEHR,
Consul.

INTERNATIONAL COMPETITION IN SOUTH AMERICAN MARKETS.

Consular Clerk G. H. Murphy sends from Frankfort copy of a letter to the Frankfort Zeitung from its correspondent at Buenos Ayres relative to foreign competition in the markets of South America, of which the following is a partial translation:

The statistics of the foreign trade of the Argentine Republic, which have just been published, reveal the exact extent of the influence exerted upon commerce by the bad crops of 1901-2 and by the increase of duty rates, in lessening both consumption and importation. The value of imports decreased from \$113,900,000 gold in 1901 to \$103,000,000 in 1902, Germany's share of this trade declining from \$16,700,000 to \$13,200,000 gold. Importations from Belgium, which naturally included many transit shipments from Germany, decreased during the same period from \$8,700,000 to \$5,500,000 gold. Thus the entire falling off in importations from Germany amounted to more than \$4,000,000. The United States—whose importations into the Argentine Republic about equal in value those of Germany—and Italy suffered each a loss of about \$2,500,000. Great Britain alone had a small increase—from \$36,500,000 to \$37,000,000—but this was due to the fact that coal and railway materials continued in demand, in spite of the generally unfavorable condition of the market.

It seems probable, however, that in 1903 the amount of the falling off in 1902 (\$11,000,000) will be at least recovered; for, while the wheat and linseed crops will probably not reach the fabulous figures recently predicted by the Argentine Minister of Agriculture, the exports of these two articles will very likely amount to \$50,000,000 and \$20,000,000 gold, respectively, an increase for these two cereals alone of about \$35,000,000.

It may be well to explain here the cause of the decreased importation from Germany. It is not due to United States competition in South America, as the United States has had very little success there, except in the Argentine Republic.

The following tables compare exports from Germany and the United States*

* Figures for the United States are for the fiscal years.

to the principal South American countries, the values being stated in United States currency:

Exports from United States.

Year.	South America.	Brazil.	Argentine Republic.	Venezuela.	Colombia.	Chile.
1892.....	\$33,100,000	\$14,300,000	\$2,900,000	\$4,000,000	\$3,100,000	\$3,500,000
1894.....	33,200,000	13,900,000	4,900,000	4,100,000	2,800,000	2,300,000
1896.....	36,300,000	14,300,000	6,000,000	3,800,000	3,400,000	3,400,000
1898.....	33,800,000	13,300,000	6,400,000	2,700,000	3,300,000	2,400,000
1900.....	38,900,000	11,600,000	11,600,000	2,400,000	2,700,000	3,300,000
1901.....	44,700,000	12,000,000	11,500,000	3,300,000	3,100,000	5,300,000
1902.....	38,100,000	10,400,000	9,800,000	2,800,000	3,000,000	3,700,000

Exports from Germany.

Year.	Brazil.	Argentine Republic.	Chile.	Venezuela.	Peru.
1892.....	\$12,350,000	\$8,370,000	\$10,750,000	\$1,280,000	\$1,400,000
1894.....	13,560,000	7,180,000	5,350,000	1,470,000	1,000,000
1896.....	14,350,000	10,520,000	8,230,000	1,520,000	1,730,000
1898.....	10,750,000	10,630,000	4,830,000	1,020,000	1,620,000
1900.....	10,870,000	15,230,000	9,490,000	1,190,000	2,350,000
1901.....	8,450,000	12,900,000	8,090,000	1,660,000	2,640,000

The entire exportation of the United States to South America has increased \$5,000,000 during the eleven years 1892-1902, but what does this mean when it is remembered that during the same period the aggregate exports of the United States to other parts of the world increased \$400,000,000? Moreover, were it not for the increased purchasing power of the Argentine Republic—which has enabled the United States during the period mentioned to increase its exports to this one country to the extent of \$7,000,000—there would have been not only a relative but an actual decrease in the total value of exports from the United States to South America.

German exports to the Argentine Republic, it will be noted, have increased at almost the same rate as those of the United States.

In Brazil, both the United States and Germany have lost ground, not only in exports, but also (owing to low coffee prices) in imports. The importations of the United States decreased from \$118,600,000 in 1892 to \$79,200,000 in 1902, Germany's decrease being from \$32,300,000 in 1892 to \$27,100,000 in 1901. On the other hand, Germany's importations from the Argentine Republic increased in these years from \$20,700,000 to \$47,800,000, while the importations of the United States only increased from \$5,300,000 to \$11,100,000 in the eleven years 1892-1902. During the same period, Chile's exportations increased as follows: To Germany, from \$17,850,000 to \$24,030,000; to the United States, from \$3,500,000 to \$7,700,000.

Germany has accordingly, during the past ten years, succeeded in maintaining in South America the second rank after Great Britain. Her strong position is based upon the vast productive capacity of German factories, and also upon the readiness of German exporters to meet the wishes of their foreign customers.

In giving these figures, I do not wish to encourage too great a feeling of security, for it is natural that the North Americans will continue in the future to work with energy for the strengthening of their position in a market where they have already had some success.

TIMBER CONCESSIONS IN DUTCH GUIANA.

Minister Newel transmits from The Hague, under date of May 15, 1903, a statement from the governor of Surinam relating to concessions for cutting timber in Dutch Guiana, which reads, in substance:

No concession of less than 400 hectares (988.4 acres) is granted. Thus far, the concessions are granted only for squares or rectangular plots, with payment in advance at the rate of 10 cents per hectare (2.471 acres) and for one year. The holder has a prior right to renewal of the concession. The grants are made by the governor of Surinam and the government reserves the right, at all times, of instituting an inquiry into the manner in which the work is carried out. The holder of the concession is empowered to avail himself of all the different sorts of wood found on the territory, with the exception of the bolletrie boom (*Lucuma mammosa* Juss). Pending further regulations by colonial order, these concessions shall be granted on the following conditions:

1. Except for the cutting down of fuel and the working of timber, no trees shall be felled, deprived of their bark or resin, or injured in any other way, on penalty of \$1 for every tree thus injured.

2. Government right of supervision.

3. Persons employed shall be under proper control.

4. Withdrawal of the concession in case of failure to comply with conditions.

5. Expenses of concession shall be refunded by the holder.

6. Authorities are not responsible for any difference in the situation, area, form, or boundaries between the territory conceded and the indications of the chart according to which the concession was granted.

7. The concession does not prevent the erection on the territory of works of public usefulness, either by the authorities or by private persons or societies, with the consent of the authorities, the holder of the concession having no claim to indemnity or subsidy whatever.

EMERALD MINES IN COLOMBIA.

Consul-General A. M. Beaupré, of Bogotá, under date of April 29, 1903, sends a copy of the conditions* prescribed by the Government for the presentation of bids and for the leasing of the Muzo and Coscuez emerald mines. These mines, the property of the Colombian Government, are to be leased to the highest bidder, the proposals to be received by the Government on December 31, 1903. To be admitted as a bidder, it is required:

1. Not to be in debt overdue to the National Treasury, the fact to be established by a certificate issued by the treasurer of the Republic.

2. To produce the sealed proposal addressed to the Minister of Finance before 10.30 a. m., December 31, 1903.

*Filed in the Bureau of Trade Relations.

3. To add a certificate of the treasurer-general stating that the bidder has deposited in the National Treasury in American gold or in drafts on London, Paris, or New York, payable, at most, thirty days' after sight to the order of the same treasurer and backed by a respectable bank in Bogotá, or by receipts from the Crédit Lyonnais, London Bank, or Union Bank, if the bidder is a foreigner, the amount of \$50,000 required as a guaranty against bankruptcy.

4. To present a signed statement, accepting, without any restriction whatsoever, the stipulations set forth in these presents. The minimum monthly rent shall be \$30,000 American gold for the ten years' lease. Proposals which do not cover this amount shall not be admitted. At all times the Government reserves to itself the right to inspect the mines, in order to prevent damages, and the liberty to declare the contract null and void by reason of said damages. The Government may occupy said mines without applying to the judicial authorities and even by having recourse to force.

NEW TARIFF OF COLOMBIA.

The Department has received from Consul-General A. M. Beaupré, of Bogotá, translation of the new Colombian tariff, as follows:

CUSTOMS TARIFF.

FIRST CLASS.

Taxed at the rate of 20 cents (7 cents gold) per kilogram (2.2046 pounds).*

Paper in the form of journals, pamphlets, and other printed matter.

Building woods, such as shingles, beams, sleepers for railways, and planks and boards, neither planed nor finished; wood in the form of carriages and trucks for railways; houses not adjusted.

Iron and steel in rails, rail spikes, and other materials for public railways; in bridges for public roads; in gasometers, apparatus, conducts, and lamps for public lighting; articles of iron intended for the construction or repair of penitentiary establishments; in telegraph wire for public use; in railing for ornamenting public buildings and squares; lighting conductors; conducts for public drains of the districts and for public fountains or basins.

Copper or bronze in the form of statues for the ornamentation of public buildings and squares.

Gold coins of a fineness of not less than 90 per cent.

Silver in coins of a fineness not less than 90 per cent.

Marble in statues and monuments destined for the ornamentation of public buildings and squares.

Clay tiles, building material, such as unwrought stone, clay bricks, and tiles made of burnt clay and stone.

Live animals.

Yarns, white and colored, prepared with finish.

SECOND CLASS.

Taxed at 45 cents (16 cents gold) per kilogram.*

Coke.

Sweet potatoes or yams, potatoes, onions, maize, rice, chick-pease, lentils, beans, and all other kinds of vegetables, pot herbs, and fruits, fresh.

Ice.

* Taking the value of the Colombian peso, as estimated by the United States Mint, April 1, 1903, at 35.2 cents gold.

Wheat flour prepared for vermicelli and other similar alimentary pastes imported for the manufacture of said product.

Printing inks for bookbinders or lithographers, liquid or solid.

Sacks or bags (empty) of coarse cloth, tarred or not, with or without waterproof paper, and coarse tissue for the manufacture of such bags.

Caoutchouc in the form of hose for fire engines.

Demijohns and common bottles of black glass or of common white glass.

Tallow, not manufactured.

Stearic acid, niter, and sulphur, crude; flower of sulphur; sulphur in powder, sticks, or cylinders; and products and substances necessary for the treatment of metals by the action of chlorides, such as sulphuric acid, bromine, bromide of potash and soda, chloride of lime (bleaching powder), hyposulphite and carbonate of soda, and caustic soda.

Blue blotting paper for packing vermicelli and other alimentary pastes.

Common woods (planed) and cabinetmakers' woods (planed or not), unwrought, with the exception of veneers; boats, mounted or not, intended for the navigation of the inland waters of the Republic; machinery for mining purposes.

Boards for making boxes to contain vermicelli or other similar alimentary pastes and intended for the manufacture of these products; used furniture, imported by Colombian envoys extraordinary and ministers plenipotentiary on their return to the country.

Empty bags of jute or sisal hemp, tarred or not, with or without waterproof paper, and tissues of said material for the manufacture of these sacks.

Hay and straw.

Iron, crude, in vessels or parts of the same; light-houses and lanterns; iron houses and galvanized iron in plates and sheets for roofing; fire engines and apparatus; machines for mines; machines for arts, trades, and industries; machines of all kinds, the weight of which exceeds 1,000 kilograms (2,204.6 pounds); tanks for potable water; iron wire (barbed wire) for fencing and staples and other accessories for fixing same; stampers and blocks of iron, steel, or bronze for ore-crushing machines and mills.

Marble and jasper in slabs and tiles; marble in powder, clay, Roman earth or cement, lime gypsum, raw or in powder, chalk, feldspath, silica, massicot, kaolin, bone in powder and other raw materials for the manufacture of crockery.

Slates for roofing.

Roofing tiles.

Coal.

Red pitch.

Canary seed.

Seeds, shoots, and graftings of plants, and live plants.

THIRD CLASS.

Taxed at \$1.25 (44 cents gold) per kilogram.

Must of barley and other materials, fermented or not, liquid or solid, for the manufacture of beer, and condensed beer.

Common red wine in casks, barrels, and demijohns.

Earthenware in pots, pans, bottles, large or small flasks (empty) destined to be used as receptacles, and, in general, common crockery.

Flasks, large and small, of common glass.

Potash, soda ashes and salts, pine resin, subcarbonates of potash and soda.

Wood in barrels, pipes, and casks, mounted or not, for dry goods or liquids;

common wooden boxes, roughly made, mounted or not, for packing; carts and wagons for the transport of goods and other similar uses.

Cotton, not manufactured.

Anchors and grapnels for small boats.

Telegraph wires for private use; tower clocks, including dials and bells.

Machines for agricultural purposes.

Presses for printers, bookbinders, and lithographers; motors of all kinds and of any power; "moditores" and large cylinders for coffee-preparing machines; plows.

Steel in bars and rods for manufacturing purposes.

Lead in ingots for mines.

Quicksilver.

Gold in bars.

Silver in bars.

Filtering stones.

FOURTH CLASS.

Taxed \$2.25 (79 cents gold) per kilogram.

Garlic; flour, including sago, arrowroot, tapioca, maizena, and other similar products.

Salt codfish and meat in brine, and, in general, fish and meat not prepared.

Sugar.

Beer and other fermented beverages.

White wines, sweet and dry, in casks or barrels.

Red wine, Bordeaux, Burgundy, and Catalonia, and pharmaceutical wine of San Rafael in bottles.

Black or blue-black ink for writing.

Hemp, in the form of cordages and cables, tarred; oilcloth for roofing, for farm-houses and bridges; wool, unmanufactured.

Caoutchouc in pipes, and hose for pumps, drains, and roofs; caoutchouc, prepared for machines and flooring, excepting hose for fire engines, which pays 45 cents per kilogram (16 cents gold per 2.2046 pounds).

Earthenware in conduits, pipes, and tubes, for pumps, drains, and roofs.

Sheet glass, not silvered.

Stearin and paraffin, not manufactured.

Saltpeter.

Common resin and tallow soap.

Carbonate of calcium.

White paper, not sized, and colored for printing; blotting paper, and all other common paper for packing and wrapping, even with advertisements printed on it; emery paper.

Cardboard for printing, bookbinding, lithography, and other industrial uses.

Wood in bedsteads; large dining tables; wardrobes and large chests of drawers for clothes or other uses, without mirrors, carvings, or inlaid work; bellows for forges; buckets and tubs; taps for barrels or casks; small boards for match boxes and wood for matches; coaches and carriages of all kinds; oars; windows and doors, imported separately; machines for ships; mechanical, industrial, and agricultural machines.

Palm leaves for the manufacture of hats.

"Espadafia," straw, and common twigs, unwrought and in brooms; mats and door mats of all kinds.

Iron and steel in rails for private railways, and in bridges for private roads; balustrading for buildings, and also for doors and windows, imported separately; hydraulic pumps and machinery, with their pipes and other accessories; machines

for arts, trades, and industries; machines not mentioned, the weight of which does not exceed 1,000 kilograms; tin plate; large boilers; iron pulley blocks; anvils; plates or rods not included in roughly wrought iron; beds, large chains, safes, nails, and tacks; kitchen utensils, not tinned, or only tinned on the interior; flat irons; large implements for agricultural purposes, for quarries and for mines, such as hoes and picks, levers, shovels, drill bits, large hooks (garlanchas), axes, large crow-bars for mines, spades, hammers, pickaxes, drills, machetes and other knives for felling timber; machetes or hunting knives, not exceeding 20 inches in length; drills of steel for mines; tires, wheels, axles, springs, and pins for carriages and carts.

Lead, in slabs, pipes, and other articles exceeding 5 kilograms (11 pounds) in weight; also shot and accessories for printing; and in ingots, which are not destined for mines.

Zinc, unwrought, in plates and sheets, including those for roofing, and in pipes and powder.

Large and ordinary gunpowder for mines, in barrels and other recipients, the gross weight of which exceeds 2 kilograms (4.4 pounds).

Gun cotton, known as tonite, for mines.

Dynamite for mines.

Lithographic stones, whetstones, and pumice stones.

Coloring earths, for building.

Crucibles.

Tar.

Black pitch, for shipbuilding.

Tow, or rope yarn, and felt for packing purposes.

Black wax.

Guano.

Chemical fertilizers.

Hops.

Bone and horn, unwrought.

Tubes, hose, and pipes of wood, caoutchouc, earthenware, clay, or metal, for pumps, drains, and roofs, with the exception of those for fire engines.

Fuses for mines.

Slates and slate pencils.

Wadding of tow, rope, or felt, for gun cartridges.

FIFTH CLASS.

Taxed at \$4.50 (\$1.50 gold) per kilogram.

Hazelnuts, nuts, and almonds in the shell, and, in general, all alimentary products, not prepared, and not elsewhere mentioned.

Chocolate.

Pearl barley.

Vermicelli and other pastes.

Olives in barrels.

Olive oil; linseed oil for preparing paint.

Colored inks for writing.

Cotton in wicks for candles and matches.

Hemp, unbleached.

Caoutchouc in lids and stoppers for receptacles.

Harness for carts and carriages.

Articles of all kinds of common faience and stoneware.

Petroleum.

Foolscap paper; books, printed.

Wood in musical instruments; organs and pianos.

Scales, balances, Roman and for weighing more than 100 kilograms (220.46 pounds).

Copper or bronze, unwrought, in bars and in ingots; in plates or sheets of whatever weight.

Tin in ingots.

Lead in capsules for recipients.

Flint stones.

Gypsum manufactured in any manner not elsewhere mentioned in the tariff.

Cork in planks or stoppers.

Apparatus for chemical laboratories and meteorological instruments.

SIXTH CLASS.

Taxed at \$9 (\$3.16 gold) per kilo,

Alimentary products, prepared, such as bologna sausages, salmon, ham, extract of meat, sweetmeats, confectionery, preserved and dried fruits, etc.; fruits, preserved in vinegar; and condiments of all kinds not especially mentioned.

Aniseed.

Liquids of all kinds, with the exception of perfumery and liquids especially mentioned.

Cotton in wicks for lamps and tinder boxes; bridle reins.

Hemp and flax in cordage, not otherwise mentioned in the tariff; in common cloth, prepared or varnished, for floors; common oilcloth for carriages, not including that used for table covers.

Hides, skin, and leather, unmanufactured, except patent leather.

Articles of all kinds of porcelain and of alavera.

Crystal and glass in mirrors, not exceeding 25 centimeters (9.8 inches); all other articles of glass not included in any other class of the tariff.

Spermaceti, not manufactured.

Stearin and paraffin manufactured into candles, etc.

Tallow or other candles not especially mentioned.

Alum.

Common oil soap.

Writing paper, envelopes, and all other paper not specially mentioned; stationery not specially mentioned; wall paper, and paper marbled or painted for bookbinding and other purposes.

Cardboard in articles not included in the tariff, with the exception of playing cards, which are included in class 16.

Wood in thin plates for locks; in furniture not specially mentioned in this tariff; in statues, images, and altars for churches; in harmoniums, barrel organs, and harps; in pencils for writing and for carpenters; in molds and rules for mechanical purposes; in bellows, except those for forges; in saddletrees, uncovered.

Keyboards for harmoniums.

Baskets of osiers or other vegetable material.

Iron, steel in tools for blacksmiths, stone masons, carpenters, and bricklayers; "hormas" (instruments for arts and trades); in wire for tiple cords; rings, hinges, screws, and springs for furniture; in furniture; in scales, balances, Roman, etc., for weighing 100 kilograms (220.46 pounds) and less; currycombs and brushes; cooking utensils and other articles of tin, or of iron, tinned both on the interior and exterior; knives for arts and industries, such as bookbinders' and shoemakers' knives in portable stoves.

Copper and bronze, in pans or boilers, or other articles the weight of which exceeds 25 kilograms (55 pounds).

Marble and jasper, otherwise than in tiles, slabs, and lithographic stones.

Wood matches.

Alabaster, in whatsoever form.

Glue, common.

Varnishes.

Indigo.

Paints, in powder or prepared.

Aniline.

Ordinary brushes.

Horse and boot brushes.

Steel in augers, not mentioned.

Blacking for shoes.

SEVENTH CLASS.

Taxed at \$13.50 (\$4.75 gold) per kilogram (2.2046 pounds).

Cinnamon.

Hemp and flax, in common, unbleached tissues, such as cretonne, crehuelas, sail, and tent canvas; domestics, with the exception of drills.

Patent leather, unmanufactured.

White, yellow, and laurel-colored wax, not manufactured.

Mineral wax and artificial beeswax.

Powders for polishing metals.

Spermaceti, manufactured into candles, etc.

Drugs and medicines of all kinds, with the exception of those mentioned in classes 2, 3, 4, and 6.

Acetic acid.

Ammonia and nitrate of ammonia.

Chlorate of potash.

Saccharine.

Cochineal.

Reuter's soap.

Peptonic wine.

Florida, Devina, and Kanaga waters.

Music paper.

Wood, in moldings, carvings, and ornaments for furniture, and frames, gilt or not, in furniture of all kinds, with mirrors, inlaid work, or upholstered with woolen or silk tissues.

EIGHTH CLASS.

Taxed at \$18 (\$6.33 gold) per kilogram.

Wines, not mentioned in classes 3 and 4.

Cotton, manufactured into unbleached tissues, without white or colored parts, not figured, and without needlework, in white thread.

Hemp and flax, in cretonnes, white or striped, common, in thread.

Caoutchouc, unmanufactured and in buttons not covered.

Crystal and glass in mirrors, exceeding 25 centimeters (9.8 inches).

White, yellow, and laurel-colored wax, manufactured into candles or other articles.

Blank books, ruled or not, and note books.

Pictures, maps, and engravings of all kinds, and music in manuscript or printed.

Cigarette paper and wrapping for same.

Paper entirely gilt or silvered.

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Wood, in velocipedes; wooden boxes for beehives; in handles for saws; in small boxes of thin wood for drug stores; and in forms not mentioned in any other part of the tariff.

Iron and steel, in cutlery not otherwise mentioned; in advertisements on tin, painted or varnished, not enameled, and manufactured in forms not designated in any other class.

Articles of copper and bronze, the weight of which exceeds 500 grams but does not surpass 25 kilograms (55 pounds).

Tin in plates and other articles.

Lead in any shape not mentioned in another class.

Zinc, manufactured into any article not mentioned in another class.

Buttons of bone, horn, and "tagua" (vegetable ivory) and composition not covered.

Combs of horn, common.

Forceps for extracting teeth.

NINTH CLASS.

Taxed at \$22.50 (\$7.92 gold) per kilogram (2.2046 pounds).

Cotton, fulled (fulas), blue; and tissues, white or unbleached, with white parts, plain, neither dyed nor figured, without needlework or embroidery, such as those known as "bogotanas," calicoes, "liencillos," "madapolanes," "bramantes," etc.

Wool in blankets.

Articles of copper or bronze, the weight of which does not exceed 500 grams.

Tin in powder or sheets.

TENTH CLASS.

Taxed at \$27 (\$9.50 gold) per kilogram.

Cotton in drills and other tissues, white or colored, not otherwise mentioned.

In shawls, with or without woolen fringes.

Hemp and flax in fine unbleached tissues, with the exception of drills and other tissues mentioned in the following categories of this tariff.

Wool in yarns.

Tissues of horsehair or other tissues not specially mentioned.

Oilcloth for furniture and table covers, not specially mentioned.

Caoutchouc in elastics for shoes.

Crystal and glass in beads, pearls, bugles, piping cords, imitation precious stones or jewels, glasses for watches and spectacles, and other similar articles.

Wax matches.

Fine gunpowder (known as "mostacilla") in cans or other receptacles, and, in general, that not comprised in any other class.

Buttons, common, of mother-of-pearl.

Straw hats, common.

Tobacco, cut or otherwise manufactured.

ELEVENTH CLASS.

Taxed at \$31.50 (\$11.08 gold) per kilogram.

Tea.

Cotton in counterpanes, tissues called "marcellas" and figured or damask tissues, not included in any other category; velvet, ferret, and ribbons.

Wool in carpets, rugs, and table covers.

Lead in toys, foil, and thin sheets.

Fireworks.

TWELFTH CLASS.

Taxed at \$36 (\$13.67 gold) per kilogram (2.2046 pounds).

Cotton in handkerchiefs, with or without common embroidery; ruanas, and cotton tissues in the piece for their manufacture.

Hemp and flax in drills, unbleached; white or colored "platillas," damasks, stuffs for tablecloths, napkins, and towels; bed covers, stuffs for mattresses, ribbons, sheeting, and other similar materials, not mentioned in another number of the tariff, provided that they be without needlework or embroidery.

Caoutchouc in boots and shoes of all kinds, life preservers, tissues for making apparel, "zamarros" and waterproof cloaks (ruanas), without wool or silk.

Wood in musical instruments not mentioned in classes 5 and 6; walking sticks without swords; umbrellas.

THIRTEENTH CLASS.

Taxed at \$40.50 (\$14.25 gold) per kilogram.

Cotton in stockings and other kinds of knit wear, such as undershirts, drawers, and gloves; muslins, lawns, and other transparent tissues; damasks, table covers, and hammocks; ready-made underclothing, without embroidery, lace, or other ornamentation, composed of materials subject to higher duties; in fringes, galloons, cords, braids, tassels, and other similar articles.

Wools in baize, frieze, and flannels.

FOURTEENTH CLASS.

Taxed at \$56.25 (\$19.80 gold) per kilogram.

Hemp and flax in handkerchiefs, caps, stockings, gloves, Brittany cloth, coquillo, long lawns, estopillas, picardias, Irish linen, labales, warandorfs, batistes, striped stuffs in imitation of cotton; fringes, galloons, shases, tapes, braids, cords, tassels, and other similar articles; ready-made clothing, without embroidery, lace, or other trimmings, composed of materials subject to higher duty.

Wool in any other form than those mentioned in any other class.

Caoutchouc manufactured in cords, bands, elastics, for hats, and in any other form not mentioned in the other classes.

Hides and skins in shoes or in form not otherwise mentioned.

Guns.

Cartridges for revolvers and firearms whose importation is not prohibited.

Knives (navajas) and scissors, fine or half fine; knives and forks, with handles of ivory, mother-of-pearl, Britannia metal, or with electroplated handles; nipples for guns; beads, gilt or silvered; pencil cases, jewelry, and all gilt or silvered articles; also those of German silver or electroplated, fine or half fine.

Plumbago and armenian paper.

Copper or bronze in jewelry, beads, galloons, spangles, wire, and similar articles; electroplated articles.

All articles not mentioned in the tariff.

Aguardiente, absinth, alcohol (absolutely pure, disinfected, etc.), bitters, brandy, champagne, cognac, liqueurs, curaoa, chartreuse, and other pousse caf  s, gin, kirsch, rum, whisky, and similar spirits.

FIFTEENTH CLASS.

Taxed at \$67.50 (\$23.76 gold) per kilogram.

Tobacco in cigars and cigarettes.

Saffron.

Cotton in all kinds of tissues, embroidered or with net work, and imitations

thereof, including laces, insertions, and the same articles in ready-made clothing not otherwise mentioned.

Hemp and flax in tissues of all kinds, embroidered or with lace work and imitations thereof, including laces, insertions, etc., and the same tissues in ready-made clothing not otherwise mentioned.

Wool in loose woven or transparent tissues, tissues of all kinds, embroidered or with lace work and imitations thereof, including laces, insertions, etc., and ready-made clothing.

Silk threads, tissues, etc.

Hides, skins, and leather in gloves, caps, furs for trimming clothing, etc., pocketbooks, cigar cases, game bags, and other similar articles.

Small tin powder boxes and the powder puffs; dye for the hair.

Razor strops, toothbrushes, clothes brushes, etc., not mentioned in the tariff.

Straw hats, except the common ones, which are in class 10.

SIXTEENTH CLASS.

Taxed at \$112.50 (\$39.60 gold) per kilogram (2.2046 pounds).

Side arms, firearms, and other arms, not including sporting guns.

Brocades or other tissues, embroidered with gold, silver, or other metals; also threads, etc., of the same materials.

Articles of perfumery and for toilet, such as essences, creams, and perfumed soap.

Gold and silver in any other form than in bars and moneys.

Precious stones and playing cards.

Extract of cognac, and all condensed liquids for the manufacture of spirits.

ARTICLES FREE OF DUTY.

The following articles can be introduced by all the custom-houses of the Republic free of duty.

Articles imported for account of the Government, whatever their nature.

Personal effects of foreign ministers or diplomatic agents accredited to the Government, provided that the government to whom they belong grant the same privilege to the ministers and diplomatic agents of the Republic, and on compliance with the formalities relative to the matter.

Baggages, up to the weight of 500 kilograms (1,102 pounds), of ministers and diplomatic agents of the Republic on their return home to the country, provided always that they bring the same with them and declare on their word of honor that said baggage does not contain articles for sale.

Natural products of Venezuela, Peru, and of other countries which have granted, or which in future may grant, by treaty, the same privilege to Colombian products.

Passengers' baggage, up to the weight of 150 kilograms (330.69 pounds) per person, provided that the effects be clearly destined for their use, and that they be presented by them in person at the custom-house on entry into the country. Any excess of said weight, not accompanied by an invoice, shall be dutiable as the most highly taxed class in the tariff.

Any artisan or agriculturist coming to work in the country may, in addition to his baggage, import free of duty, up to the weight of 100 kilograms (220.46 pounds), the implements which in the opinion of the Government are necessary for his calling.

CHANGES IN MEXICAN STAMP TAXES.

Under date of May 20, 1903, Consul W. W. Canada, of Veracruz, sends copy of a recent executive decree, as follows:

ARTICLE 1. The federal contribution of 30 per cent which is payable in accordance with the stamp law of April 25, 1893, on all money that on any ground or cause is handed in to the revenue offices of the States and municipalities will, from July 1 next, be reduced to 25 per cent.

ART. 2. The amount which, according to the law of May 4, 1895, is to be distributed as a special stamp tax among the manufacturers of alcoholic beverages obtained by distillation will be *\$800,000 (\$306,400) instead of \$500,000 (\$191,500).

ART. 3. From and after July 1 last, the stamps for the tax on manufactured tobacco will be supplied at the following prices:

I. The stamps for native cigarettes and cheroots at the rate of 50 cents (19.15 cents) per 100.

II. Stamps for foreign imported cigarettes at the rate of 85 cents (32.5 cents) per 100.

III. The stamps for native cigars:

(a) For boxes or packages not exceeding five cigars, \$1.80 (68.9 cents) per 100.

(b) For boxes or packages of more than five but not more than ten cigars, \$3.60 (\$1.38) per 100.

(c) For boxes or packages of more than ten but not more than twenty-five cigars, \$9 (\$3.45) per 100.

IV. The stamps destined for all kinds of imported foreign cigars will be double the price severally fixed in the foregoing section for native cigars.

V. The stamps for packages of 1 kilogram (2.2 pounds) net of native loose, cut, or chewing tobacco will be sold at 18 cents (6.9 cents) each, and at double that price for imported tobacco of the same kinds and weight.

VI. The stamps for packages or cases of 1 kilogram (2.2 pounds) net of native snuff will cost each 36 cents (13.8 cents) and 72 cents (27.6 cents) for packages or cases of the same weight of imported foreign snuff.

PROPOSED TARIFF CHANGES IN FRANCE.

There are now before the French Chamber of Deputies several bills involving tariff changes or the fixing of a bounty upon certain products which may exert an indirect influence on like American products. These bills will in all probability become laws at the present session of Parliament. According to the custom in French legislation, the authors of these measures publish in connection with them the arguments upon which they are based, from which I condense briefly:

HEMP AND FLAX.

The bounty on these products (\$14.20 per hectare, or 2.471 acres, in 1902) has so increased domestic production that it is now proposed

* The Mexican peso, or dollar, on April 1, 1903, was valued at 38.3 cents.

to make the protection permanent. They produce in France about 1,980 pounds of hemp to the hectare. The average price of hemp during the year 1901, according to official statistics, was \$17.75 per 100 kilograms (220 pounds). The bounty represents an ad valorem duty of about 9 per cent.

Flax, cultivated under the same conditions, averages 1,540 pounds to the hectare. The bounty of \$14.10 per 100 kilograms is considered equivalent to a duty of about \$2 to the 100 kilograms, or 6 per cent. The average price of flax for 1901 was \$22.20 per 100 kilograms.

The supporters of the proposition argue that the bounty requested is very small compared with the protection accorded other agricultural products. The customs duty of \$1.40 per 100 kilograms on wheat, they state, is equivalent to a bounty of 35 per cent ad valorem. The duty on wine (considered in its relation to the cheap wines of southern France) represents a protective tariff of 40 per cent ad valorem. Sericulture receives as a bounty 60 centimes (12 cents) per kilogram (2.2 pounds) of fresh cocoons, which are worth about 50 cents—a protection of 16 per cent ad valorem.

In 1901, 63,761.8 metric tons of flax, combed and separated, were imported into France, at a total value of \$12,901,546.60, and 20,216 metric tons of hemp, valued at \$3,827,780.40. It is therefore a sum of from \$16,000,000 to \$17,000,000 that France pays to foreigners for flax and hemp. Nearly all of this money goes to Italy, Germany, and Russia; 18,272.8 metric tons were imported from Germany and Italy.

HOPS.

Another measure calls for protection for the hop industry. This industry, it is stated, is carried on at a loss. The cost of labor per hectare (2.471 acres) is estimated at from \$360 to \$380, according to fertility of land. The average yield is 2,640 pounds per hectare, the cost price of which varies from \$30 to \$31 per 220 pounds; the average selling price is from \$28 to \$30 per 220 pounds. As it requires only about 6.5 ounces of hops for 1 hectoliter (26 gallons) of beer, the proposed protection of \$20 per 100 kilograms (220 pounds) of hops would add but from 2 to 2.5 cents to the cost of 1 hectoliter of beer. It is asked that the duty be raised to \$20.30 and \$17.40 per 100 kilograms, as a general and minimum tariff.

CITRATE OF LIME.

A customs commission proposes the removal of the duty from citrate of lime. Up to the present time, citric acid has been made entirely from concentrated lemon juice, coming principally from

Sicily. It is used by confectioners in making sirups, grenadines, and other beverages and, in industry, in printing cotton goods. The commission adds:

Within a few years, the Sicilian producers have improved their methods and now transform raw lemon juice into citrate of lime without concentrating it, thus realizing a notable economy in labor and coal. The article at present pays a duty in France of \$2 per 220 pounds. As our competitors receive this article duty free, our producers are under great disadvantages compared with them. France annually consumes about 300 tons of citric acid and exports about double that quantity.

JOHN C. COVERT,
Consul.

LYONS, *May 26, 1903.*

PROPOSED GERMAN TARIFF ON MACHINERY.

The following has been received from Consul J. F. Monaghan, of Chemnitz:

As always happens in a country when the revision of its tariff has been consummated, all parties are not content and strong opposition develops. Chemnitz papers, assuming spokesmanship for the great machine interests of the city, express dissatisfaction with the duty upon machinery. It is contended that not only is the new tariff entirely out of keeping with the high duties imposed upon machinery by other countries, but it also fails to maintain a proper relation between the duty upon the raw materials used by machine builders and that upon the finished machines.

As to the comparative amount of protection offered by the German tariff and that of other nations with which the German Empire enjoys a good export trade in machinery, it is demonstrated that while the new German tariff incorporates a duty of from 3 to 5 per cent, and, in some cases, even as low as $1\frac{1}{2}$ per cent, the American duty averages 45 per cent, while Austria recently raised her duty about 20 per cent, and with certain classes of machinery more than tripled it. Russia, also, has almost doubled her duty on machinery.

The comparative lowness of the German tariff is considered a most serious menace to the machine-building industry of the country. It is urged that the present tariff be amended so as to provide the country with an effective weapon for the conclusion of reciprocity treaties with other nations. The new Austrian tariff, it is believed, will seriously injure the export trade of Germany to that country, which, in 1901, amounted to the considerable sum of \$4,300,000 for machinery and parts of machines. Austria, it is reasoned, has put on her armor in anticipation of commercial wars.-

How far these sentiments find support at Berlin is unknown; but since the publication of the new tariff in its final form, criticisms seem to have been strengthening, so that the possibility of more material influence leading to a revision of the present machine duties is by no means precluded.

NEW TREATMENT FOR TUBERCULOSIS.

At the last meeting of the Medical Society of Berlin, at which were present many of the most eminent medical scientists of Germany, there was presented by Dr. Danelius and Prof. Theodor Sommerfeld an elaborate thesis describing their experiments with a new system of treatment for tubercular disease by inhalation, or rather fumigation, with the combined fumes of eucalyptus, sulphur, and charcoal. These experiments have been a subject of keen and sustained interest among the foremost medical men of Berlin during the past six months. The high authority of the tests which have been made, the encouraging nature of the results reported, and the fact that these results may constitute an important step toward the scientific mastery of a disease which has become one of the most widespread and fatal scourges of the human race, give to the proceedings of last night a popular interest which transcends all the ordinary limits of pathological discussion. Concisely stated, the history and nature of the new method are the following:

During his extensive travels in Australia Mr. Robert Schneider, a German merchant, with a practical knowledge of chemistry, noticed that the natives in the northwestern part of Australia used a decoction made by boiling the leaves and roots of the eucalyptus tree as a remedy for consumption, which is a prevalent disease in many sections of that country. He further observed that the natives living in districts where the eucalyptus tree grew abundantly were generally immune from the disease, and that natives suffering from tuberculosis frequently came from other regions to live in the eucalyptus district, and with generally favorable results. From all that he could observe and learn by inquiry, Herr Schneider concluded that the effective remedial agent was the eucalyptus, which is known in materia medica as a germicide and antiseptic of recognized efficiency.

With the aid of a physiological chemist, he prepared a combination of flowers of sulphur, powdered charcoal, and the pulverized eucalyptus leaves, impregnated with essential oil of eucalyptus. This mixture has been named "sanosin," and is the material which has been used in the recent experiments. Since the time of Galen

the fumes of sulphur have been known to exert a curative effect upon sufferers from phthisis, and it appears that the combination of sulphurous acid with eucalyptus and carbon has a peculiarly effective potency in attacking the bacillus of tuberculosis. On account of its extreme volatility, sanosin is put up in sealed glass tubes, each containing a dose of about 2 grams (31 grains), in which condition it is to be sold, like other medicines, through authorized druggists. When used, the tube is broken and its contents poured on an earthenware plate heated by a spirit lamp; the volatile eucalyptus quickly evaporates, and, in combination with the small quantity of sulphurous-acid fumes generated, medicates with an aromatic, penetrating odor the air of a closed room, in which the tuberculous patient lives and inhales the curative influence in an easy, natural way.

The new remedy was brought to Berlin in September of last year, where, after due consideration, it was taken in hand for elaborate scientific test and practical experiment. Prof. Theodor Sommerfeld, of the University of Berlin—a leading authority in pulmonary disease—and Dr. Danelius, also a lung specialist, took charge of the experiments and a special clinic or hospital ward was opened for that purpose in the Moabit quarter. Other physicians were assigned to the various details of the work. One made regular and frequent examinations of the sputa of the patients under treatment, keeping careful record of the changes in each case from day to day; another made daily inspections of their general condition, temperature, pulse, appetite, etc., so that the collective record in each individual case is the work of several different expert physicians. The patients were taken from the poorest class of sufferers, many of whom live at Berlin in damp, unsanitary dwellings, and through the public hospitals at all seasons of the year. So prevalent and fatal is tubercular disease among this class that notwithstanding all that science has hitherto done to restrain its ravages, the death rate in Berlin alone from that disease averages ten per day. Each patient, before being admitted to the new treatment, was required to present a certificate from the Royal Hospital showing that he or she had been treated there and was suffering from progressive tuberculosis; many when admitted had reached a stage at which hope of relief by ordinary means had been practically abandoned. Thus far 120 patients have been treated, of whom it is stated more than 50 per cent have been discharged as cured. Some have been enabled, while under treatment and sleeping in the hospital at night, to spend portions of the day engaged at their usual occupations. The purpose of the meeting last evening was, first, to listen to formal theses prepared and read by Dr. Danelius and Professor Sommerfeld, describing the

process of treatment and giving the detailed records of a number of typical cases, and, secondly, to present in person, for examination by the assembled physicians, several of the patients who had been previously treated for tubercular disease by one or more of the physicians present; had received certificates from them on entering the eucalyptus clinic; and were now presented for examination as cured.

It is not within the province or purpose of this report to venture any opinion as to the effectiveness or permanent value of this new remedy. So many sensational cures have been announced in recent years for phthisis, cancer, and other widespread human diseases that the average layman is constrained to receive the announcement of further discoveries in the same field with a certain incredulity. At the same time it must be conceded that, in view of the dominating importance of the subject, the record of what sanosin has thus far accomplished is entitled to a more than mere passing recognition. The period of experiment is of course too brief to form the basis of any definite conclusion. There is a general unwillingness among physicians to accept the arrest of tubercular disease for so short a period as six months as proof of a permanent cure. Others doubt whether any process of inhalation alone can reach the ultimate seat of the disease. It will probably be safe to accept for the present the conservative but positive statement of Dr. Engel, the expert charged during the recent experiments with the examination of the sputum, in which he has had a long experience under other forms of treatment. His statement is that under no other treatment has he seen the character of the sputum change so rapidly and uniformly, through the diminution and disappearance of bacilli and the elastic fibers peculiar to tubercular disease, as under the treatment with sanosin.

To which may be added the deliberate testimony of Dr. Danelius and Professor Sommerfeld that—

The inhalations act with greater certainty in removing the catarrh which accompanies pulmonary phthisis than any other medicinal or physical measures directed to the same end. This is shown especially by the fact that the expectoration on the one hand decreases or disappears entirely, or, on the other hand—in acute cases—changes its character. The fact that the patient generally is quickly relieved from the troublesome and irritating cough is of the greatest importance, especially as the sleep which is absolutely requisite for a recovery from fundamental disease can then be obtained. The appetite in almost every case increases under the influence of the inhaled vapors, and through an increased consumption of food the second preliminary condition for the cure is furnished.

FRANK H. MASON,
Consul-General.

BERLIN, *May 14, 1903.*

THE CHEMICAL INDUSTRY IN GERMANY.

The object of this report is to show the commercial importance of this great industry to the German Empire, the source whence the materials are drawn, the extent of the production and consumption at home, as well as the trade in chemicals with other countries. The following table is for the year 1898:

District.	Establishments.	Workmen employed.	Wages paid.	Average yearly wages per capita.
	<i>Number.</i>	<i>Number.</i>		
Berlin	1,202	18,115	\$3,978,639	\$219.13
Hamburg.....	921	20,856	2,980,150	143.32
Frankfort.....	446	15,929	3,177,190	198.80
Mannheim.....	627	19,873	4,672,418	235.12
Leipzig.....	1,191	21,787	4,707,436	211.00
Cologne.....	958	23,191	5,760,983	248.41
Breslau.....	657	8,165	1,353,425	153.00
Nuremberg.....	587	7,434	1,232,637	165.80
Total	6,589	135,350	27,862,878	1,574.58

The statistics* for the year 1901 placed the number of establishments at 10,385, which gave employment to some 150,000 workmen. It will be noticed that the highest rate of wages is paid in Cologne and Mannheim and the lowest rate in Hamburg and Breslau. The gradual increase in the number of establishments, workmen, total wages, and average per capita is shown in the following table:

Year.	Establishments.	Workmen.	Total wages.	Average.
	<i>Number.</i>	<i>Number.</i>		
1894.....	5,758	110,348	\$23,471,928	\$200.63
1895.....	5,947	114,581	24,615,026	212.77
1896.....	6,144	124,219	27,067,187	218.00
1897.....	6,316	129,827	28,777,155	219.43
1898.....	6,589	135,350	30,853,892	225.62
1901.....	10,385	150,000	(*)	(*)

* No returns.

CHEMICAL SUBSTANCES.

Among substances necessary to the chemical industry are bromine, iodine, chloroform, phosphorus, and sulphur. Bromine is found in sea water and saline springs. A certain silver ore in Chile also contains large quantities of it. Chile is also the home of iodine. This

* Statistisches Jahrbuch für das Deutsche Reich.

product is secured from the ashes of seaweed, especially that which abounds on the coasts of Japan, France, Scotland, and Norway. From 1895 to 1900, Germany imported 800,000 tons of chloroform for use in her chemical industries. Red phosphorus is used principally in the preparation of matches and rat and mouse poison. Sicily is the home of sulphur. In 1897 the island exported 360,000 tons of sulphur to foreign countries—123,000 tons going to the United States, 89,000 tons to France, 26,000 tons to England, and 23,000 tons to Germany.

SALTS.

The number of factories engaged in making mineral and saline salt in Germany is 97. The total output in 1899 amounted to 1,432 tons, valued at \$3,684,200. The imports in 1900 were valued at \$119,000 and the exports at \$571,200. The annual consumption of salt by the German people is about 1,218 tons. Fully 80 per cent of the imported salt comes from England, and the rest chiefly from Portugal; while British India, Holland, and Belgium are the principal countries to which salt is exported. The German States which produce mineral salt are Anhalt, Thuringia, Posen, Hanover, Westphalia, and Bavaria and the Province of Saxony. The most formidable competitor of the German salt industries is found in those of Wieliczka in Galicia.

Potassic salts.—In the manufacture of potassic salts, Germany has almost a world monopoly. The seats of production are in Hanover, Brunswick, Thuringia, and the Province of Saxony. Fully 50 per cent of the total output finds its way into foreign countries. Nothing produces a better manure for beet-sugar plants, potatoes, and tobacco than chlorate of potash. A powerful syndicate has control of the most important of these works in Germany, which demands high prices from foreign countries, while keeping the rates at home within reasonable limits.

Potash.—The annual exports from Germany amount to about \$1,250,000. About \$100,000 worth is imported each year from Austria-Hungary. Potash is used especially in the production of soap and glass. In 1900, 4,495 tons were exported to the United States.

Nitrate of potash.—This is manufactured in large quantities in Germany for the purpose of producing gunpowder. It is further used in glass and metal factories and in pickling meat. In 1900 the total exports from Germany were 14,744 tons, valued at \$1,332,000. Some 4,884 tons were imported from Great Britain.

Chloride of magnesium.—This serves the purpose of smoothing cotton yarn before it is woven in order that the strings may retain a certain degree of dampness. The residue from the manufacture of

this substance is allowed, for the most part, to run into the River Elbe and greatly discolours the water. In 1900, 13,375 tons of chloride of magnesium, valued at \$126,140, were exported, 50 per cent going to Great Britain.

Nitrate of soda.—This is a product of Chile and Peru. In 1900 Germany imported 484,544 tons, fully two-thirds of which was applied as manure to farms. The Empire's annual consumption of this product amounts to \$18,000,000. There are to-day two processes principally in use in the production of soda—namely, that of Leblanc, discovered in 1791, and that of Solvay, introduced in 1866.

In 1894 the world's production of soda was estimated at 1,232,000 tons, divided among the different countries, as follows:

Country.	Leblanc process.	Solvay process.
	<i>Tons.</i>	<i>Tons.</i>
England	340,000	181,000
Germany.....	40,000	210,000
France.....	20,000	150,000
United States.....	20,000	80,000
Austria-Hungary	20,000	75,000
Russia	10,000	50,000
Belgium	6,000	30,000
Total	456,000	776,000

It will be noticed that England produces vastly greater quantities of soda, according to the Leblanc process, than all the other countries put together. Most of the English factories have been consolidated under the name of the United Alkali Company, Limited, with a capital of \$50,000,000.

Caustic potash.—This product is produced principally by means of electrolysis. It is a specialty of the Elektron Chemical Works, situated at Griessheim, near Frankfort. In the spring of 1901 these great chemical works were almost totally destroyed by fire, which was attended by great loss of life. They have since been rebuilt or are in process of construction. In 1900 the total exports amounted to 15,379 tons, valued at \$1,475,600.

Caustic soda.—This chemical is gaining ground every year as an indispensable article in paper mills and textile factories. An electrical process with the application of quicksilver is used in the preparation of this product in the Solvay factories of Germany. This chemical is also produced to some extent in England, Belgium, and Russia. The export of caustic soda from Germany amounts to little or nothing. In order to satisfy the home markets, 1,288 tons were imported from England in 1900.

Chloride of lime and bleaching powder.—Germany exported 25,954 tons of these products, valued at \$642,600, in 1900. Chloride of

lime is manufactured in Germany chiefly by the Leblanc process. The Elektron factories in Griessheim produce immense quantities of it through the application of electricity. The article is used to a great extent in the textile factories and paper mills of all countries.

Sulphuric acid ammonia.—This is secured chiefly from the dry distillation of coal. Germany obtains 15,000 tons every year from gas works and about 100,000 tons from various smelting works. In 1898 England secured 223,000 tons from the same sources and from factories which manufactured bituminous slate. In addition to what she produces at home, Germany is forced to import large quantities of ammonia, largely for manuring purposes, which in 1900 amounted to 23,105 tons, valued at \$1,094,800. Great Britain furnished 80 per cent of the imports.

Sulphate of barium.—Nearly 1,100 tons of this product went from Germany to the United States in 1900, and the manufacture is steadily on the increase.

Alum.—The exports from Germany in 1900 amounted to 29,372 tons, valued at \$668,000. Some 3,000 tons were shipped to the United States.

Blue vitriol.—Until 1894 the United States exported no copper vitriol to Germany. In that year the statistics show that 193 tons were sent, and this increased to 1,287 tons in 1900. The copper-mining industry in the United States will have a great market in the chemical factories of Germany.

ACIDS.

Formerly, the Leblanc was the only process used in the acid and alkali industry of Germany. The introduction of the Solvay process has created many side issues. The Leblanc method is still used chiefly in the preparation of caustic soda and caustic potash from the potassium chloride of Stassfort. The hydrochloric acid secured by this process is absolutely necessary to the dyestuff industry in Germany. Independent of these uses, however, the chemical-salt-producing industries of Germany are founded on the Solvay system. The chief seat of the sulphuric industry is the Badische Aniline and Soda Factory, in Ludwigshaven-on-the-Rhine. Immense quantities of sulphuric acid are produced by the union of sulphurous acid with oxygen.

Sulphuric acid.—In 1878 Europe produced about 1,000,000 tons of sulphuric acid. Of this, England's share was 600,000 tons; France's, 200,000 tons; Germany's, 112,000 tons; and Austria-Hungary's, 45,000 tons. In 1898 Germany produced 846,000 tons from about 70 works, more than two-thirds being secured from Spanish gravel and pebbles. In 1897 about 1,000,000 tons were manufactured in the United States and 200,000 tons in Russia. Sulphuric acid is one

of the most important materials used in the whole chemical industry. It is employed in the production of Leblanc soda, sulphate, and chloride and in dyeing. The greater part of the sulphuric acid produced never reaches the market, for the reason that it is at once utilized by the producing factories for other manufacturing purposes. Sulphuric acid is produced from the smelting of sulphuric ore, sulphur gravel, and copper gravel. The great increase in the German production is due to the fact that the iron industries have been forced by the Government to prevent the escape of injurious acids and gases from the smokestacks of their forges and smelting works, as they proved ruinous to vegetation.

Carbolic acid.—In 1900 Germany imported 4,225 tons, valued at \$500,000; about 80 per cent came from Great Britain. The exports amounted to 2,452 tons, of which 274 tons went to the United States.

Carbonic acid.—This is produced in Germany from natural springs. It is used especially in the preparation of beer and of late years in connection with the bottling of certain wines. Germany exports about 4,000 tons annually, chiefly to Holland and Belgium.

Boric acid.—This is found in California, Tuscany, Asia Minor, and Chile. Its prominent use in Germany is in connection with the glass and porcelain industries.

OXIDES.

White arsenic.—This is obtained by heating arsenic pebbles, which are secured in large quantities in England, Prussia, and Saxony. Arsenic is used in Germany in the organic-dyeing industries in the production of certain colored paints and for the extermination of vermin. It is also used to some extent as a medicament.

Copper colors.—The so-called Schweinfurt green belongs to this class. It is one of the most destructive poisons known, and its use is forbidden in Germany on this account. It is manufactured, however, for export, Russia and China buying large quantities.

Ultramarine.—This was first used about one hundred years ago in France and Germany. It is a coloring material which is affected but little by light, air, and water, but easily fades in acid. This industry in Germany was once very prosperous, but owing to overproduction, foreign tariffs, and competition it passed through a severe crisis about fifteen years ago, in which most of the factories were compelled to close down. Those which were able to survive have since been consolidated into a stock company, which is known to-day as the Veréinigte Ultramarine Gesellschaft.

LEAD PENCILS, CRAYON, AND INK.

There are 227 factories in Germany which manufacture lead pencils. They give employment to 2,813 persons. In 1900 Germany

exported 1,614 tons of lead pencils, worth more than \$2,000,000. The largest quantities went to Great Britain, Russia, Japan, and the United States. Some 53 factories also manufacture crayon.

German exports of ink amounted in 1900 to 738 tons, valued at \$150,000—Holland and Russia being the best customers. During the same year large quantities of printers' ink were exported to Belgium, England, Holland, Austria-Hungary, and Switzerland.

DYEWOOD.

Blue wood.—The import of blue dyewood into Germany is on the decrease. This is due to the fact that all natural organic coloring matter is gradually giving way to artificial coloring matter. The import of dyewood material in 1900 amounted to 36,868 tons, valued at nearly \$1,000,000; it came from Mexico, Haiti, British West Indies, Dominican Republic, and the United States. In former years, dyewood reached Germany by the way of England, Holland, and Belgium. To-day German ships carry the entire trade.

Yellowwood.—This is imported into Germany from Austria-Hungary, Mexico, and South America. It is used in coloring wool and in the preparation of mixed colors. Owing to other plants and artificial methods being used as substitutes, the imports are growing less each year. The imports in 1900 amounted to 1,919 tons, or fully 5,000 tons less than in 1890.

Redwood.—Germany imports this wood from British India, Mexico, and the west coast of Africa. Indian redwood has for ages been used by the Arabs as sandals. The industry in Germany to-day is insignificant. In 1889 the imports amounted to 8,309 tons, while in 1900 they had decreased to 2,000 tons.

NATURAL COLORING MATERIALS.

Madder.—Some years ago, madder was the most important material used in the red-coloring industries. This plant once flourished in Avignon, Alsace, and Holland. In former years it was also cultivated to quite an extent in Germany. During the past thirty years, however, its culture has become almost extinct.

Indigo.—This is perhaps the oldest and best-known coloring material, as well as the most important derived from plants. More than three-fourths of the raw material comes from India. In 1897 the Badische Anilin und Sodafabrik began the manufacture of artificial indigo, which is to be found on the market to-day in large quantities. The competition between Indian indigo and that artificially produced is keen. It is probable that the increased cultivation of the plant in British India and the Dutch East Indies, together with cheap labor and low freights, will enable natural indigo to hold

its own in the markets of the world. Germany imported 564 tons of indigo plant in 1900, valued at \$1,000,000.

Cochineal.—This is imported into Germany chiefly from Mexico. Owing to the overwhelming competition of artificial coloring material, the imports have been reduced to practically nothing. The statistics for 1900 show only 59 tons, valued at \$30,000.

ARTIFICIAL COLORING MATERIALS.

Alizarin.—Successful experiments in producing artificial alizarin from anthracene were made in 1869. Chemical factories soon accommodated themselves to the new method, and the madder industry, whence this coloring stuff had hitherto been drawn, was completely ruined.

Aniline.—Aniline colors are produced from aniline oil and aniline salt. The aniline-dyeing industry is a product of the nineteenth century, and many great names are connected with its development. The discoveries of Runge, Hofmann, Perkin, Verguin, Baeyer, and Fischer have enabled this industry to become what it is to-day. In the manufacture of aniline, Germany holds a commanding position. Raw materials, such as coal tar and aniline oil, are imported from England. Under the guidance of Germany's excellent chemists, these are changed into manufactured products, and their former value is increased fiftyfold. Nearly every country in the world is dependent upon Germany for aniline colors.

TANNING MATERIALS DERIVED FROM PLANTS.

FRUITS.

Myrobalans.—In 1900, nearly 13,000 tons of this fruit were imported from India, which marks an increase of about 400 per cent since 1890. German ships carry the entire trade. The acid secured from the fruit is applied to bark in the tanning factories.

Gallnuts.—These are imported into Germany from Asia Minor, China, and Japan. The annual imports amount to about 3,000 tons, valued at \$1,000,000.

BARK, LEAVES, AND TWIGS.

Bark.—The annual imports for the tanning industries of Germany amount to about 110,000 tons, valued at \$2,500,000; France, Holland, and Belgium supplying the greater part. In addition to bark, certain woods are imported from Argentina.

Sumach.—This is imported into Germany from Italy and Austria-Hungary. Owing to its greater utility in the preparation of leather, oak bark is gradually supplanting sumach in the tanning industries of Germany. Nevertheless, about 5,000 tons are still imported every year.

EXTRACTS.

Germany is almost entirely dependent upon foreign countries for the raw materials for tanning. The bark produced by the oak forests on the Moselle and in other parts of the Empire can scarcely be considered. In 1900 there were imported 21,000 tons of extracts of various kinds.

Tannic acid.—This is used to some extent in the tan works, but the textile industries of the Empire consume large quantities for coloring purposes.

DRUGS.

The drug trade in Germany is in a flourishing condition. The imports have advanced with the demands of the home industries and the growth of the population. Germany exports each year about 3,000 tons of drugs, worth \$4,000,000, and imports about half this amount. Great Britain and the United States are in this line, as in a great many others, Germany's best customers. The principal items in the trade are opium, licorice juice, rhubarb roots, dried wormwood, and cantharides.

Antipyrine, antifebrine, and quinine are products which enter in considerable quantities into the foreign commerce of Germany. The high tariff impedes the import of quinine, and France has succeeded in becoming a competitor of Germany in this industry. Tariff wars in Europe have been more or less detrimental to this trade. In 1900, German exports of this kind of medicaments amounted in round numbers to 400 tons.

MISCELLANEOUS.

Germany carries on an extensive trade in other articles which are akin to, or play an important part in, the production of chemicals. The following table, with statistics for the year 1900, explains itself:

Article.	Imports.	Exports.
	Tons.	Tons.
Rosin and asphalt.....	80,765	36,921
Tar	35,554	32,437
Pitch.....	55,415	4,350
Turpentine, raw.....	102,454	22,892
Turpentine oil.....	28,130	1,647
Gum arabic.....	3,888	1,283
Balsam (various kinds).....	178	111
Camphor.....	1,048	365
Varnish	900	1,504

The total imports of the above may be estimated in round numbers at 286,345 tons, valued at \$9,377,200. The exports amounted to 99,652 tons, valued at \$2,808,400.

LEADING CHEMICAL FACTORIES.

Among the leading chemical factories in Germany are the following.

Badische Aniline and Soda Factory in Ludwigshaven-on-the-Rhine.—This factory was established in 1865 and employs 6,000 workmen and 300 officials. It has branch establishments in France and Russia. The chief articles of manufacture are artificial dyestuffs, aniline, and aniline oil and salts. Indigo is produced on a large scale by synthetic processes. It also manufactures alizarin colors and strong sulphuric acids.

Farbenfabrik, formerly F. Bayer & Co., Elberfeld.—This has branch establishments in different cities of Germany and one in Moscow. It has a capital of \$3,000,000 in bonds and \$2,000,000 in securities. It employs 5,200 workmen, 27 engineers, 148 technical advisers, 520 mercantile clerks, and 145 trained chemists. The chief products of manufacture are drugs and aniline and alizarin colors.

Farbwerke, formerly Meister, Lucius & Brüning, Höchst-on-the-Main.—This was established in 1862 and has a working capital to-day of nearly \$5,000,000. Fully 5,000 people are employed in manufacturing tar colors, indigo, and all kinds of pharmaceutical powders.

Chemische Fabrik, formerly Hell & Sthamer, Hamburg.—This was founded in 1846; it manufactures every year 10,000 tons of potash and soda saltpeter, 9,000 tons of crude kitchen salt, 4,000 tons of borax, and 1,000 tons of boric acid.

No fewer than 77 German chemical factories exhibited their products at the world's fair at Paris in 1900. Twenty companies and individual firms which manufacture machinery and fittings for chemical laboratories were also represented.

CHEMICAL LITERATURE.

For those who wish to make a thorough study of the German chemical industry, I would recommend the following books:

1. Die chemische Industrie des Deutschen Reichs; O. N. Witt, Gärtner's Verlag, Schöneberger Strasse 26, Berlin, NW.
2. Chemische Industrie; a semimonthly magazine published by the above-named firm.
3. Zeitschrift für angewandte Chemie; a semimonthly magazine published by J. Springer, Berlin.
4. Sammelausstellung der Deutsch. Chem. Industrie in Paris, 1900; Verlag, H. Feyl & Co., Berlin.

GERMAN VS. AMERICAN CHEMICAL INDUSTRIES.

The German chemical industry, like the textile industry, is absolutely dependent upon the unrestricted importation of raw materials and the exportation of products manufactured therefrom.

Germany exports about \$14,000,000 worth of chemicals, colors, dyes, and drugs to the United States every year. The above description will show the importance of this industry to a great class of the German people. The time has arrived for us to put forth every effort to develop our own chemical industry, so that we shall become practically independent of German imports. The workmen in the German chemical factories earn good wages. The industries, on the whole, are prosperous, many companies paying 10 and 12 per cent dividends. In spite of the secrets used in the German industry, especially in aniline colors, which are transmitted from generation to generation, our tariff has forced many German manufacturers to establish branches in the United States in order to keep a grip on their trade. The raw materials necessary can be procured as well by us as by Germany. Our universities are taking more interest in the subject every year. The chemical industries of the United States ought soon to be able to compete successfully with those of Germany in the markets of the world.

EIBENSTOCK, *May 27, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

NEW MICROSCOPE IN GERMANY.

The following has been received from Consul J. F. Monaghan, of Chemnitz:

A discovery which may have far-reaching results in the field of scientific investigation and do much toward the further solution of the problem of the molecular construction of matter was recently made by two professors of Jena University—H. Siedentopf and R. Zsigmondy. They have discovered a new method of microscopic observation, whereby ultramicroscopic particles are not only made visible, but can also be studied with a view of determining their size. A full description was recently published by the inventors in the German scientific journal *Annalen der Physik* (volume 10, 1903), and reprints of the same are to be had by interested parties by addressing the above-named professors.

The method consists mainly in a powerful artificial illumination of the particles to be observed. These particles, because of their minuteness, exert no material influence upon the vibratory period of the light waves, and hence appear to the observer as self-illuminating, or luminous objects, by virtue of their reflected light. Since, however, the reflected light is weaker than the original illuminating beam, it is necessary, in order to secure the advantages of an intensified illumination of the particles, to employ the principle of dark-field illumination.

Heretofore, the great imperfection in the method of dark-field illumination has been the failure to eliminate all light reflected from the surfaces of the condensing lens and the microscopic objective. Whenever any of the light of the stronger illuminatory ray mingles with the weaker light reflected from the particle which is being observed, the visibility of that particle is proportionately blurred, just as the light of the rising sun gradually obscures a morning moon. Perfection in dark-field illumination has been attained when none of the light of the illuminatory ray enters the line of vision in the observation of an object through the microscopic objective, and the object is visible solely by virtue of its own reflected light.

This interference of the direct light of the illuminatory ray or of its reflected light from the surfaces of the condensing lens, with the reflected light of the object under observation, is overcome through the application of the principle that when the illuminatory ray is perpendicular to the axis of the microscopic objective any direct light or any light reflected from the surfaces of the condensing lens can no longer enter the line of vision of the observer, and hence can no longer interfere with the reflected light of the particle to be observed; provided that the condensing lens for the illumination of

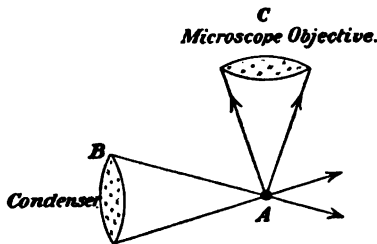


FIG. 1.

the object and the microscopic objective for the observation of the object are so adjusted as to meet at a common focus (*A*, fig. 1). It will be seen that with this construction no light reflected from the condensing lens (*B*), or passing through it directly, can possibly enter the microscopic objective (*C*), thereby permitting the observer of the particle located at *A* to view the same solely by virtue of its own reflected light. This method of dark-field illumination enables the employment of the most powerful sources of illumination for microscopic observation, and for this reason must be considered as a marked advance in the technique of this field.

The principle involved in this new method is well illustrated by the common phenomena of the "visible sunbeam" in a darkened room which is penetrated by a ray of light. Dust particles in the path of the ray, hitherto invisible, become visible when the eye of the observer is at right angles to the direction of the penetrating ray. If, now, the illumination is strengthened through the employment of a more powerful source of light and a condensing lens, and the power of the eye is strengthened by means of a microscopic objective, we have all the essentials of the new method of dark-field

illumination as employed by the two Jena professors for rendering visible ultramicroscopic particles.

The figure given below represents an outline drawing of the new illuminating apparatus, reduced to one-tenth of its actual size. It is constructed as follows: By means of a clock heliostat, a ray of light is sent through an iris screen into the dark observation chamber within which the apparatus is placed. The various individual movable parts of the instrument are carefully and accurately mounted upon a metal slide (*P*) by means of delicately adjustable riders. The beam of light cast into the dark chamber by the heliostat first strikes the telescopic objective (*F₁*). This lens has a diameter of 100

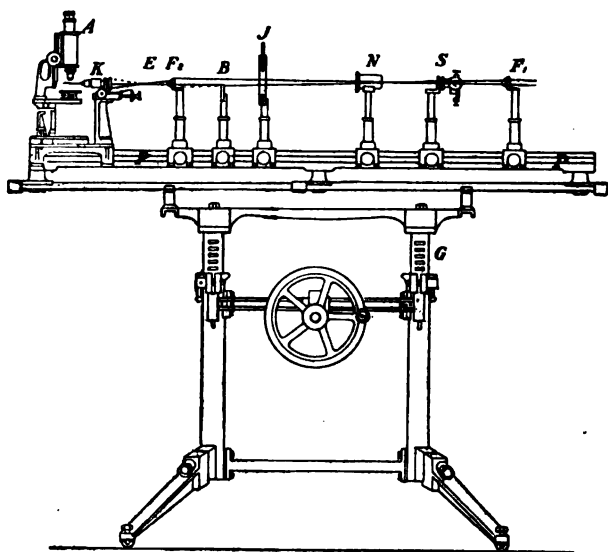


FIG. 2.

millimeters (3.94 inches) and condenses the ray so that it measures but 1 millimeter (0.03937 inch) on striking the apparatus *S*, which contains an accurately adjustable slit. The size of this slit may be varied, at pleasure, from 5 millimeters (0.19685 inch) to 0.5 millimeter (0.01968 inch) in width (horizontal dimension), and from 0.1 to 2 millimeters (0.00398 to 0.07874 inch) in height (vertical dimension). By virtue of this adjustable slit, the beam of light is made to lie flat, its greatest dimension being horizontal. Behind the adjustable slit a polarizer (*N*) may be placed, if necessary. The iris screen (*J*) serves to cut off all light that may arise through reflection from the sides of the adjustable slit (*S*). Another screen (*B*) serves to cut off the lower half of the beam, in case an immersion lens is used in the microscope, so as to prevent the intrusion of injurious reflections that may arise in this case. A second telescopic

objective (F_2), of a diameter of 80 millimeters (3.15 inches), reduces the size of the flattened beam by one-fourth. This reduced beam is again reduced to one-ninth its size by the microscopic lens in the condenser (K), and in that form strikes the object which is being observed through the microscope (A). In order that the flattened and reduced ray may come to a focus in line with the axis of the examining microscope, the condenser (K) is fitted with sensitive micrometer screws, working at right angles to each other.

By means of this apparatus, the Jena professors have seemingly accomplished what the great Helmholtz did not conceive as possible. This physicist declared the limit of microscopic perception to be 0.0001 millimeter,* while it is estimated that this limit has been extended to from 0.000004 to 0.000007 millimeter. That such an achievement promises great things in scientific investigation is readily seen.

GERMAN INQUIRY FOR FURNITURE AND DRY GOODS.

Consul T. J. Albert, of Brunswick, reports that an inquiry has been made for the names and addresses of prominent firms in the United States engaged in the manufacture of small decorative furniture, for the purpose of introducing their products into Germany. Not only furniture manufactured from different kinds of wood is desired, but furniture made of bamboo and rattan. There is also an inquiry for the names of American firms manufacturing colored cotton goods, madras, etc. Catalogues and samples of such goods would be gladly received. A price list is inclosed, showing the different kinds of furniture wanted, together with the prices prevailing in Germany,† which will be a guide for firms who propose to make offers. American manufacturers can communicate with the consulate or directly with the firm of Carl Langerfeldt, Brunswick, Germany. The following is taken from the price list:

Description.	Price.	
Folding furniture for verandas, balconies, gardens, and dwellings (light weight and solid construction), Pompeian red, green, and natural:	<i>Marks.</i>	
Armchair	6.00	\$1.43
Bench, 45.3 inches long	10.00	2.38
Table—		
39.3 by 23.6 inches	10.00	2.38
Round, 21.6 inches in diameter	6.00	1.43

* 1 millimeter=0.03937 inch.

† Filled for reference in the Bureau of Statistics.

Description.	Price.	
	Marks.	
Bent wood, reseda or red lacquered:		
Chair.....	3.75	\$5.89
Armchair	5.50	1.31
Sofa.....	11.00	2.62
Table	8.50	2.02
Bent reed, natural:		
Chair.....	14.00	3.33
Armchair	21.00	5.00
Sofa.....	36.00	8.57
Table	17.50	4.17
Oak hall racks.....	36.00 to 45.00	\$8.57 to 10.71
Chests	38.00 to 80.00	9.04 to 19.04
Screens, bamboo:		
Three panels.....	13.00 to 17.00	3.09 to 4.04
Four panels.....	17.00 to 21.00	4.04 to 5.00
Pedestals of walnut or mahogany.....	6.75 to 16.50	1.61 to 3.92

MAY CROP REPORT IN PRUSSIA.

Under the Prussian system, official reports of the condition of growing crops are collected on the 15th of each month, then tabulated, classified, and the net result published. As has been hitherto repeatedly explained, the German system of notation is from 1, which means a full maximum crop, to 5, which indicates practical failure. No. 2 indicates a good yield, 3 middling, and 4 meager, so that the higher the number and decimal fraction used, the lower the indicated condition of the crop.

The reports for the middle of May, just made public, confirm the natural impression that the cold, wet, lagging spring has not been favorable to the growing crops of Germany. The last days of April and the first fortnight of May brought cold, persistent rains, with hail and occasional snow, to all of northern Germany. It is only since the 20th of May that a normal temperature has been realized.

The notations of May 15, as compared with those of the same date in 1902, present the following exhibit:

Date.	Wheat.		Rye.	Barley.	Oats.	Potatoes.	Clover.	Lucern.	Grass.
	Winter.	Spring.							
May, 1903.....	3.1	2.5	2.9	2.5	2.5	3	2.4	2.7	2.7
May, 1902.....	2.5	2.7	2.8	2.9	2.9	2.9	2.9	2.9	1.2

The situation does not then differ essentially from that of a year ago, and as the critical days of May have passed without frost the outlook is on the whole reassuring. Some of the most fruitful years in Germany have been marked by a cold, late, discouraging spring.

The whole percentage of winter-wheat fields in Prussia which have been plowed up this spring on account of winter killing and destruction by mice, snails, and other pests has been 20.79, as compared with 17.09 per cent plowed up during the spring of 1902. -

BERLIN, *May 23, 1903.*

FRANK H. MASON,
Consul-General.

PACKING OF GOODS FOR FOREIGN MARKETS.

There is probably no subject which has been more insisted upon by consuls in all parts of the world in their official reports than the proper packing of goods intended for the foreign market. An incident which occurred a few days ago again forcibly brings home the necessity of the most scrupulous attention to the matter of packing goods for the export trade. A shipment of 40 cases of machine parts recently arrived at the Chemnitz custom-house, intended for a local machine-building concern which ranks as one of the largest in the world. The cases weighed 250 and 500 pounds, in round numbers, there being two sets of goods. They were constructed of heavy 2-inch hard wood. With the exception of a number of wrenches, bolts, and the like, the contents of each case consisted of one solid piece. Parts were of delicate construction, consisting of glass plates and glass reflectors set in iron.

Out of a total of 40 cases, the contents of but 6 arrived in good condition. The most serious injuries sustained by the machinery were heavy indentations of the sheet-iron casing, the breaking off of large and important parts of the cast-iron frames, and the breaking of glass plates and reflectors.

In one case the iron foundation plate was broken off, due to wrong attachment in the cases and to too spacious packing; in another the electrical conductors were left exposed. It may be mentioned that 38 copper tips were lost during transportation, having been loosely attached.

The hard-wood casing was in itself sufficiently strong and the nailing sufficiently thorough to secure stability. In justice to the shipper, it must be said that the manner of the packing, however prominent its weaknesses, indicated intention on his part to do a thorough job. Apparently, however, he possessed no previous experience in packing for export. The main fault was that all the cases were much too spacious for their contents. The heavy material was given the opportunity to flop from side to side and hence was subjected to tremendous strain when being handled, and on a rough, rolling sea.

The more delicate parts (shades, glass plates, and reflectors) ought to have been packed in separate boxes with a liberal use of excelsior or other soft material. Wrenches, latches, bolts, etc., ought to have been put up in small boxes, and not merely attached to the iron framework by means of thin wire, which wears out and breaks off in the course of a long journey.

However much the occurrence is to be regretted, the thing to do is to take the lesson to heart and to do better next time. It must be remembered that the question of packing has two sides to it—stability and appearance. In the case of heavy goods, stability is paramount. For lighter goods—like food stuffs, drugs, perfumery, soaps, etc.—appearance counts in winning popularity for an article. Neatness and tastefulness in the packing of goods attract attention.

J. F. MONAGHAN,

CHEMNITZ, *May 6, 1903.*

Consul.

AMERICAN AND RUSSIAN PETROLEUM IN GERMANY.

In the 1902 report of the chemical examination bureau of Breslau, it is stated that Roumanian petroleum, which had at one time been looked upon as a promising factor in the German markets, has almost disappeared, as well as the Galician product. The Galician wells, it is said, are no longer as productive as formerly. This leaves the field open to the efforts of the American and the Russian companies. It is stated to be in the interest of Germany to see that there is no coalition between these two, which can be prevented only by increasing the demand for the Russian product. The German buyer, however, is said to look upon the Russian oil with disfavor. The German authorities have for years been increasing their orders to the Russian company, asserting that this oil is cheaper and of a better quality than the American; but private consumers care nothing about the origin of the oil they use, and the merchants in general continue in their refusal to purchase Russian petroleum. Nevertheless, the report shows that this oil has won considerable ground since 1898.

Lately, there have been renewed efforts to obtain a larger market for Roumanian oil, which have been greatly aided by the statements of German chemists that this oil has proved to be more economical than the American, and that it may be used in lamps constructed for American oil.

ERNEST A. MAN,

BRESLAU, *May 15, 1903.*

Consul.

POLLAK-VIRAG RAPID TELEGRAPH IN GERMANY.

A new invention relating to rapid telegraphy is undergoing a practical test, the results of which should receive due consideration in the United States. The system is known as the Pollak-Virag rapid telegraph, and after a careful examination at the Polytechnic Institute at Charlottenburg it was shown to the Emperor and Empress of Germany about the middle of last February. It was decided at this visit by the chief of the German postal system and other influential persons that the new system would be given a practical test on the line between Berlin and Königsberg, which is some 710 kilometers (447½ miles) long. The results obtained with the new system are considered most satisfactory, as it has been demonstrated that 40,000 words per hour can be transmitted under the most varying conditions. The imperial telegraph service has decided to introduce the system on the busy line between Berlin and Frankfort.

A special writing machine, worked in the usual way, perforates a strip of paper which is drawn over a roller under metallic brushes with great rapidity. The interruptions of the current move the membranes of two telephones at the receiving station, which write the messages by means of a small mirror. In scientific circles the new system has created a great deal of interest, and some of the technical journals in Germany have given descriptions of it. Of these, one of the best appeared in the *Zeitung des Vereins Deutscher Eisenbahn-Verwaltungen*, of November 19 and 26, 1902.

DEAN B. MASON,

BERLIN, *May 25, 1903.*

Vice and Deputy Consul-General.

PROGRESS IN GERMAN CABLE LAYING.

A new era in German cable construction began with the laying of a cable to Vigo, Spain, a distance of about 1,300 miles.

During the last seven years, Germany has laid 7,375 miles of cable, at a cost of over \$7,000,000. In 1898 a cable, 73 miles in length, was laid between Sassnitz and Trelleborg, and in 1899 German Southwest Africa was connected with the international telegraph system by a cable 154 miles long.

In 1900 the first German-American cable between Emden and New York, via the Azores—a distance of 4,813 miles—was laid. At about the same time Germany put down the first German cables along the Chinese coast, the cable Tsintau-Chefoo being 285 miles and that

connecting Tsintau and Shanghai 438 miles long. The year 1901 witnessed the laying of the fifth cable between Germany and England, connecting Borkum and Baktou, a distance of 280 miles. The telephone cable between Fehmarn and Laaland was laid in 1902.

The construction of a second trans-Atlantic cable between Emden and New York, via the Azores, has been commenced and will, it is expected, be ready for service before the expiration of the next year. Germany is also contemplating an increase of her cable net in eastern Asia and the South Sea by constructing cables between Alenado and Guam and the Palau Islands and Shanghai.

It is said that the growth of German interests, both military and commercial, will in the future require the building of more cables by Germany, independent of foreign nations. Germany now has cable works and two cable steamers.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *May 14, 1903.*

AMERICAN DRIED FRUITS IN GERMANY.

While in the United States last year, I visited a number of the larger prune and apricot orchards in the vicinity of San José, Cal., and since my return to this country have given the importation of evaporated American fruits considerable study. For this part of Germany—namely, Baden and Alsace-Lorraine—I find the outlook for increased sales most encouraging. From the leading importer in the western part of Germany I learn that California prunes and apricots are rapidly supplanting the products of France and Italy. The California fruit is cheaper and its flesh brighter and more solid.

Speaking of the packing and drying of prunes and apricots, my informant tells me he has no fault to find, except with the manner in which the boxes are put together. He says there would be less breakage if they were dovetailed instead of being simply nailed.

Regarding the time in transit, he says that he has experienced considerable annoyance and some loss of trade in consequence of shipments being delayed en route from California. One shipment was over ten weeks on the way; the buyers think the goods were held in New York several weeks. California fruits are generally paid for in advance, which fact makes delays in shipments especially annoying.

The Elsässische Conserven-Fabrik und Import Gesellschaft, of Strassburg, last season sold 8 carloads of apricots, 10 carloads of prunes, and 25 carloads of evaporated apples. Prunes and apples

retail here at from 12½ to 15 cents per pound and apricots at 20 cents.

The evaporated apples come from the vicinity of Rochester, N. Y., and find a ready sale. Considerable fault, however, was found with the shipments of last season. The apples were not all sufficiently dried before packing, which caused them to mould in the boxes. The metric system should be used in foreign shipments.

JOSEPH I. BRITTAIN,
Consul.

KEHL, *May 29, 1903.*

OPENING FOR DRIED FRUITS IN FRANCE.

Several commission merchants at Nantes have requested me to secure for them the agency of responsible fruit-exporting houses in the United States. There is a growing market in all western and northwestern France for American dried fruits (the prunes of southern California being most in request) and the demand is unusually active this year because of the almost complete failure of the French fruit crop. Any of our fruit exporters who wish to be represented at Nantes need only communicate with this consulate.

The merchants here are interested in California prunes, dried apricots, and dried apples; they wish particularly to hear from California firms that will export these products direct to Nantes, as they do not care to do business through middlemen at Antwerp, Hamburg, and Liverpool.

The season is advancing, and if this excellent market interests any of our exporters who are not already represented in this territory, they should communicate at once.

BENJ. H. RIDGELY,
Consul.

NANTES, *May 22, 1903.*

SURTAX ON GOODS INDIRECTLY IMPORTED INTO FRANCE.

Vexatious correspondence and loss of money have recently resulted in a number of cases because of unfamiliarity, on the part of United States shippers to France, with the French regulations respecting merchandise transhipped in some European port before arriving in the port of destination. In some instances, merchandise has been forwarded under what the consignors deemed to be a through bill of lading, the possession of which they vainly presumed

would protect them against the imposition of the French surtax which is applicable in the case of importations from a European country of products of extra-European origin. The exemptions from this surtax are: Quinine bark; Australian, South African, and Indian wool; Indian cotton; jute, cacao fiber, and vegetable fiber generally, with the exception of cotton; tobacco; and Ceylon plum-bago. It will be observed that none of these exemptions cover merchandise of American origin. The surtax ranges from 1.80 francs (34 cents) to 60 francs (\$11.58) per 100 kilograms (220 pounds) in about forty specified cases, and is 3.60 francs (69 cents) per 220 pounds in all nonspecified cases. In order that there may be no misunderstanding about the matter, I have procured from the collector of customs at this port an official letter, in which he says:

Replying to your inquiry of the 6th instant, I have to say that, except in cases of superior force or acts of God, which do not constitute an interruption to direct transportation, merchandise transshipped in the course of its journey by sea is regarded as having arrived from the place where such transshipment has occurred. It results from this that the surtax is applicable to products of extra-European origin brought into France by a ship which has received them in a European port, whatever may have been the commercial reasons and particulars respecting the transshipment.

This surtax is applicable to nearly all classes of merchandise, and the exceptions to the rule are very rare indeed. These exceptions in general arise from geographical or economic considerations, and it suffices to cite a few examples to design their character. Thus, for example, it is possible to import by way of Denmark the products of Iceland and the Faroe Islands; from European Russia, the products of Asiatic Russia; from Constantinople and the European ports of Turkey upon the Black Sea, the products of the Asiatic possessions of the Ottoman Empire; from Spain, the products of the Canary Islands and of the Spanish possessions of the Morocco coast; etc.

As American shippers are obliged to pay the maximum tariff of France, except in a limited number of cases covered by the commercial convention with the United States signed on May 30, 1898,* the imposition of a surtax makes the transaction of business practically impossible, and shippers should guard against the possibility of the application of this surtax by forwarding their goods on board steamers sailing directly from American to French ports.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *May 18, 1903.*

* See Special Consular Reports, Tariffs of Foreign Countries, Part I, p. 222.

COAL IMPORTATIONS AT MARSEILLES.

The total imports of coal at Marseilles during the year 1902 were 965,542 tons, showing a decrease of 86,964 tons from the quantity imported for the previous year, when the importations were 1,052,526 tons.

The imports for 1902 were:

	Tons.
South Wales coal.....	785,476
Sunderland and Tyne coal.....	117,849
Scotch coal.....	5,754
Other qualities.....	5,334
Total British coal imported.....	914,413
Germany.....	28,646
United States.....	14,285
Belgium.....	7,200
Russia	998
Total importations.....	965,542

Included in the above return of British coal, there are about 15,000 tons of patent fuel (briquettes) and 61,000 tons of gas coal from the Sunderland and Tyne districts.

Of the American shipments, about half the quantity was gas coal, while the German was composed of coal, patent fuel, and coke from the Westphalian districts, and was delivered to the Paris, Lyons, and Mediterranean Railway Company, the Messageries Maritimes Company, Transports Maritimes Company, and the Marseilles Compagnie du Gaz et Hauts Fourneaux. The prices obtained were low, and the importations have been made by the companies here with a view to ascertaining the results to be expected from this coal, as compared with British coal.

The 7,200 tons from Belgium were patent fuel. The Russian coal was only a small sample and, I understand, did not give good results.

The f. o. b. price for contracts can be averaged at 22s. 6d. (\$5.46) per ton, the average current price being about 1s. (24 cents) per ton higher.

Extreme competition for 1903 has resulted in large contracts being taken at figures which can not be remunerative, and, although the volume of trade this year may not materially differ from that of 1902, the losses at Marseilles will be considerable, unless the prices which have ruled in South Wales for the first five months are considerably reduced.

I still deem it unfortunate that American exporters failed to follow up their energetic and successful efforts of previous years to get

into this market, while fully comprehending the causes of their present indifference. In the long run, I believe that it would have paid to have accepted moderate profits in this market as against better profits at home. For the same reason, local dealers are selling British coal at a loss, with the expectation of recouping later on. German coal seems to be stepping into the place recently made by American fuel. In appearance, this coal is inferior to the British product and is selling for less money.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *June 2, 1903.*

STRIKE OF GLASSWORKERS IN BOHEMIA.

Unsatisfactory conditions in the cut-glass industry of Bohemia—more or less unsettled for years—have reached a climax in the strike of some 1,600 skilled cutters and finishers, now affecting some twenty manufacturing towns and villages and threatening to involve the entire industry of the district. These workers are a peculiar class, frequently constituting the population of the village where a factory is located. Children begin to receive instruction at very early ages, and from about 6 years serve an exacting apprenticeship. A portion of this cutting and finishing work is done in the factories proper, where power and machines are furnished under varying conditions, which to a large extent are responsible for the prevailing discontent. Of the 3,019 workers of this class, 1,055 are females. Much of the work, however, is done by foot power at the humble homes of the workers, being carried back and forth on the backs of women and girls, the simple machines being either owned by the workers or rented from the factories. There are 7,257 of these skilled artisans, as shown by the recent industrial census, and unquestionably a large proportion is women. All work is done by the piece, no fixed daily wages being paid. An employer claims that the average wage amounts to 3.15 crowns (76.5 cents) per day for male and 2.30 crowns (55.8 cents) for female labor for the five days of the week upon which work is done. The strikers allege that the average daily wage is only 2 crowns (48.6 cents) per day, and they demand 3.15 crowns (76.5 cents). At a meeting of representative employers this week it was determined that no increase of wages could be given in the present disorganized state of the industry, but that certain reforms would be instituted. This is offered as a temporary expedient until the manufacturers can create an association to fix the selling price of goods. The newspaper organs of the workmen predict a long struggle unless the owners agree to a substantial advance in wages. Meanwhile, the strike is spreading, disorders have

occurred, and the trade is generally demoralized at its busy season. The aggregate of exports to the United States from this district for the year ended March 31, 1903, was only \$101,220.97, representing but a very small fraction of the product. Before the recent expansion of the American industry, exports to the United States were much larger. India and China are becoming excellent markets, and the continental demand is always heavy.

S. C. McFARLAND,

REICHENBERG, *April 24, 1903.*

Consul.

DRAWBACKS IN HUNGARY.

The Hungarian Government granted drawbacks last year to 22 Hungarian firms in 27 cases. The most important were:

Article imported.	Article exported.	Character of drawback.
Crude lead.....	Firearms.....	Renewed.
Crude cocoa.....	Cocoa and chocolate manufactures.....	Do.
Crude rice.....	Rice products.....	Do.
Boiler heads and plates.....	Boilers.....	Do.
Crude iron.....	Steam and blast engines.....	Do.
Iron plates in rolls and wheels and crude iron pots.	Enameled kitchen and household goods.	Do.
Crude rice.....	Milled rice.....	Do.
Tinned iron plates.....	Metal signs.....	Do.
Iron plates, boiler heads, and rings.....	Manufactures.....	New.
Shipyard supplies.....	Manufactured or improved articles.....	Renewed.
Copper wire, lead, clamp iron, round and square iron cable, and zincked iron wire.	Cables.....	Do.
Wrought iron.....	Hinges.....	Do.
Carriage supplies.....	Carriages.....	New.
Iron plates.....	Boilers and tanks.....	Do.
Iron plated and other iron ware.....	Tin and cast-iron pots.....	Do.
Tinned and zincked iron plates.....	Metal boxes for flour.....	Renewed.
Electrical supplies.....	Electrical machines.....	Do.
Iron rails, etc.....	Switches, railway cars, etc.....	Do.
Iron wire and cable.....	Chains.....	New.
Cast iron.....	Cast-iron ware.....	Renewed.
Tinned iron plates.....	Petroleum cans.....	Do.
Crude rice.....	Milled rice and starch.....	Do.
Crude iron.....	Steam and blast engines.....	Do.
Crude lead.....	Lead ware.....	Do.
Do.....	Firearms.....	Do.

In Hungary only manufacturing concerns avail themselves of such drawbacks, while in Austria middlemen also enjoy the privilege by the employment of small tradesmen. It is proposed in Hungary to follow Austria's example, especially as regards the free import of linen, cotton, and silk wares, pipes, cloths of all kinds, cotton velvet, umbrella supplies, carpets, etc., for the purpose of exporting them in an improved or manufactured form. It is intended

in particular to assist the skilled needleworkers at Kalotaszeg (eastern Hungary) and those in North Hungary by forming companies responsible for the performance of the drawback conditions. The market to which it is intended to export is Saxony, which supplies the United States with products of fine needlework. American importers may find it to their interest to look after the market in Hungary. On the other hand, our exporters will learn from the foregoing list what raw material may be advantageously shipped to this country.

FRANK DYER CHESTER,

BUDAPEST, *April 25, 1903.*

Consul.

PROPOSED PUBLIC WORKS IN HUNGARY.

The Hungarian Minister of Finance has introduced a bill containing a programme of public works of an estimated cost of 262,557,000 crowns (\$53,299,071), to cover several years. The amount for the year 1903 is about \$6,000,000. Four per cent bonds, it is said, will be issued to cover the expenditure.

The principal works planned are: Nationalization and extension of Transylvanian railways; building of Baja-Battaszek bridge over the Danube, joining the cross country with the Fiume line; building a railroad and bridge across the Danube, connecting Komarom with Ersek-Ujvar, points on two Vienna-Budapest lines; regulation of Bega River from Nagy Becskerek to Temesvar; and building of Budapest Harbor by regulating the branch of the Danube next to Soroksar, on the south side of Budapest.

Certain public buildings will also be put up or enlarged, and Fiume will receive new marine and railway facilities.

FRANK DYER CHESTER,

BUDAPEST, *May 29, 1903.*

Consul.

PROGRESS OF THE SIMPLON TUNNEL.

Consul H. L. Washington sends from Geneva, May 23, 1903, an extract from a report of the Federal Council for the year 1902 on the construction of the tunnel through the Simplon, as below:

On the northern side the building has been very regular. On account of the exceptional difficulties encountered (nature of soil), the piercing by machinery—stopped in October, 1901—was resumed only in May, 1902, after an interruption of nearly eight months, during which the total advance was only 83 meters (272 feet). Since then, the drilling on the southern side has been very satisfactory; in June and July 238 and 219 meters (780 and 717 feet), respectively, were pierced.

The extremely rapid increase of the rock temperature in April and May alarmed the officials of the undertaking—129° F. being reached at one time; but the bottom of the northern gallery being below the culminating point of the mountain, it is almost certain that the temperature will not increase any further. The installations on the northern side for aerating and cooling the air give satisfactory results, the temperature varying between 75° and 82° F.

The advance made in 1902 in Tunnel No. 1 was 3,565 meters (11,696 feet), or an average per day of 32.47 feet. The total progress on December 31, 1902, was:

Description.	Distance completed.	
	Meters.	Feet.
Tunnel No. 1.....	14,328	46,996
Tunnel No. 2.....	14,110	46,281
Complete excavating of No. 1.....	12,514	41,046
Complete covering of No. 2.....	12,075	39,606

The expenditure on the tunnel, including the lines of access, amounted in round numbers to 9,800,000 francs (\$1,891,400) from the 1st of October, 1901, to the 30th day of September, 1902 (fourth year of construction), and for the total of the four years to 37,800,000 francs (\$7,295,400).

WHEAT AND FLOUR TRADE AT MALTA.

The annual report of the local chamber of commerce for 1902 says, in part:

The importation of wheat in 1901 amounted to only 491,928 bushels, as against an annual average of 852,072 bushels for the previous fifteen years. The diminution in the importation of wheat in 1902 is much more marked and necessarily has been covered by increased importations of flour. The importation of manufactured wheat, which includes flour, is acquiring importance. In 1901, 30,652,125 pounds were imported, showing an increase of 28,613,725 pounds over 1900.

For the past two or three years very little American wheat has arrived at Malta. The customs authorities have just published a statement of the wheat, indian corn, and barley imported, consumed, and exported from April 1, 1902, to March 31, 1903. The report shows that upon April 1, 1902, there remained from previous importations 27,490 quarters of wheat and 963 quarters of barley. The importations during the period amounted to 93,926 quarters of wheat, 396 quarters of corn, and 6,724 quarters of barley. A large proportion of American exports to Malta consists of flour.

JOHN H. GROUT,

VALLETTA, May 13, 1903.

Consul.

PASSENGER ELEVATOR AT MALTA.

The local government authorities have advertised for tenders for the construction of a large passenger elevator. The custom-house landing on the Marina being at sea level, and the principal business portion of the city of Valletta being located upon a high eminence, there is no way to reach the latter except by steep and winding streets. It is intended to construct an elevator from the brow of the town plateau to its base. Should any United States contractors be interested, application as below will provide all necessary information. The advertisement reads:

OFFICE OF THE RECEIVER-GENERAL AND DIRECTOR OF CONTRACTS.

Sealed tenders will be received at this office up to 11 a. m. on Friday, the 30th of October, 1903, for the concession of the right to construct a lift from the Marina to the Upper Barracca, as shown on a site plan which may be seen in the office of public works, and to work the same for a period of either sixty or ninety-nine years, together with the right to levy tolls and transit dues.

1. Tenderers should specify the arrangements which they propose for providing the necessary capital and the period within which the work will be completed. Every tender should be accompanied with detailed plans and specifications of the proposed scheme.

2. No tender will be considered unless it is signed by the party tendering and by a responsible person engaging to become bound with him for the due performance of the contract, and unless a deposit of £100 (\$467) be paid in this office; such deposit to be forfeited in favor of the government should the party tendering or his surety, in the event of the tender being accepted, fail to appear to sign the contract within three days from the date of the notice given to them to that effect. Any deposit not so forfeited will be returned immediately after written notice shall have been given to the party whose tender is accepted.

3. The government does not bind itself to accept the highest or any tender, and tenderers should be prepared to submit to any alteration in their plans which may be called for by the military authorities.

4. Information regarding the conditions of the concession may be obtained at the receiver-general's office.

JOHN H. GROUT,

VALLETTA, *May 6, 1903.*

Consul.

NEW BREAKWATER AT MALTA.

On April 20, the King of England laid the foundation stone of the new breakwater at Malta. Malta has two harbors—Quarantine Harbor and Grand Harbor—but the improvement will be confined to the projection of the latter, in which nearly all of the commerce of the islands is carried on. It is also the headquarters of the large

British Mediterranean fleet and the location of the admiralty dock-yards. In a northwest gale, Grand Harbor has been a dangerous place to enter. When the breakwater is completed, not only will the bay be a safe and available place of anchorage at all times of the year, but extra space will be made by dredging, and additional moorings will be provided to meet the urgent need of berthing accommodation which has been required of late years. The contract was let to Messrs. Pearson & Son, Limited, and the amount to be paid for the work is, approximately, \$5,000,000. It is expected that three years will be consumed in completion. The foundations of the breakwater will be cut into the solid rock in a depth of water varying from 25 to 70 feet, and will consist of concrete mass work carefully leveled to receive the blocks of concrete weighing 40 tons each, of which the superstructure will be built. These blocks of concrete will be made at St. Paul's Bay—12 miles from the works—and brought down in lighters to the site. The breakwater itself will be constructed with two arms. The inner one will extend from Fort Ricasoli 400 feet northwest, with a thickness varying from 38 to 40 feet, and will terminate in a circular end, on which a light-house will be erected about 40 feet above the level of the sea. Seaward of this arm will be a wave breaker, consisting of 40-ton blocks of concrete thrown pell-mell into the sea. The outer arm will start about 224 feet from St. Elmo Point and run 1,240 feet northeast, with a thickness of from 48 to 52 feet, and terminate in a light-house similar to that at Ricasoli. In order to allow passage for boats, and to prevent stagnation of the water in the harbor, the long arm will not be built right up to St. Elmo Point, but will be connected to it by a steel viaduct 224 feet long. American concerns dealing in supplies likely to be needed in the work should confer with the head office of the company in London.

JOHN H. GROUT,
Consul.

VALLETTA, April 21, 1903.

STEAMSHIP SERVICE WITH COPENHAGEN AND BALTIC PORTS.

The new 10,000-ton steamship *United States* leaves Copenhagen to-day for New York on her first trip. The *United States*, like her sister ships, *Hellig Olav*, which is now on her maiden voyage to New York, and *Oscar II*, which was put into service in 1902, is a well-equipped, modern steamship. She accommodates 131 first-cabin, 76 second-cabin, and 1,302 steerage passengers, or a total of 1,509.

Her gross tonnage is 10,085; net tonnage, 6,019; horsepower, 8,350; and speed, 15 knots. She is 500 feet long, 58 feet wide, and 41 feet deep.

These vessels are important additions to the list of passenger and freight steamers plying between Scandinavian and United States ports. Each has more than twice the net tonnage capacity of any other steamer in this trade.

The United Steamship Company (Det Forened Dampskibs-Selskab) of Copenhagen, for which the new steamships were built, owns, in all, 127 steam vessels, of 156,483 gross tonnage. Of this number, 17, with 73,500 tons, are engaged in the trade with the United States. The three ships already mentioned, together with the *Norge*, *Hekla*, and *Island*, of 3,300, 3,200, and 2,800 tons, respectively, constitute what is popularly known as the "Scandinavian-American Line." Their terminal points are Copenhagen and New York, and they touch at Christiana and Christiansand, in Norway. Other steamers run from Copenhagen to New York, as well as to Boston and New Orleans.

The company maintains regular connections with practically all European ports. Especial attention is given to the Baltic Sea trade, although conditions do not yet warrant direct service from the United States to far eastern Baltic ports. It is but a matter of time, however, when a regular line of steamers will be established. At present quantities of freight are transferred at Copenhagen from the trans-Atlantic steamers of the company to other vessels which run to Baltic ports.

American exporters appreciate that success in holding and extending foreign markets depends to a considerable extent on ocean transportation facilities. Copenhagen, with its admirably conducted free harbor and extensive shipping interests, is destined to be reckoned among the world's greatest distributing centers. The Danes are not only consumers of our products, but they act as intermediaries in a large way for American goods of every description. Our manufacturers and exporters should recognize the promising conditions here and take advantage of them.

RAYMOND R. FRAZIER,
Consul.

COPENHAGEN, *June 3, 1903.*

BRITISH HOUSE-CLEANING DEVICE.

The sidewalk in front of a large furnishing house in this city is daily blocked by crowds of people watching through the windows the working of a new cleaning device. The first inquiry of the surprised and admiring spectator usually is, Is that an American idea?

So far as is known here, there is nothing like this cleaner outside of England. The firm (Smart & Brown) exhibiting it informs me that it recently received from a Chicago dry-goods house an inquiry for a cleaning device on this same general principle.

The system was invented by Mr. H. C. Booth, of London, and last year was taken over by a company which experimented with it in various metropolitan hotels, theaters, and other public places. Lately it has been tested in railway carriages, and now, its practicability being assured, agencies are being established throughout the British provinces.

The apparatus consists, in the first place, of a machine composed of a 2 to 4 horsepower motor—oil or electric—and an air pump, serving to maintain an "exhaust" of several pounds to the square inch. The machine may be portable, on wheels, or stationary. To it is attached a filter—the dust receptacle—a tightly closed metallic vessel, with capacity of a peck or more. From the filter extends a 1½-inch rubber hose, which may be of any desired length up to about 700 feet. The hose terminates in a "cleaner" or "renovator," which is a tube flattened out at the end into a kind of long slit. This is rubbed over the carpet or up and down the cloth covering of settees or chairs, from which it quickly sucks all the dust, extracting it not only from the surface, but also from the body of the substance and from underneath it—the underfelt being thus cleaned. Not a particle of dust can be detected if the carpet is then beaten. Indeed, in an experiment made in this city with a carpet returned as clean from a power beater, a considerable amount of dust was extracted by the vacuum process. The severe test of sprinkling a carpet with flour and thoroughly rubbing it in has been made, the vacuum cleaner removing every particle of the flour.

No dust is raised in a room. All is sucked through the hose into the filter, whence it is removed and hygienically disposed of—analysis showing that it is composed of many deleterious substances. The pile and color of a carpet are restored by this process, and it is claimed that there is no injurious effect whatever.

In a similar way, walls may be cleaned of dust, the cleaner being a brush of horseshoe shape, with an exhaust tube in the center.

In hotels, theaters, large business houses, and the like, it is proposed to install permanent stationary plants, so that cleaning can take place daily, thus practically abolishing sweeping. Such a plant would be in the basement, with an iron pipe of small diameter leading to fixed points on each floor. At these points flexible hose would be attached, and the plant would be operated, collecting the dust in the basement. No skilled operators are required. Railroad and street cars, vehicles, and ships' cabins and saloons could all be cleaned daily by stationary plants.

To clean residences, the portable machine can be placed in the yard or street and the hose extended into the different rooms. It is stated that the carpets, tapestry, upholstered furniture, mattresses, and bed clothing can all be cleansed of dust in a day, one man cleaning six or eight rooms. There are half a dozen different renovators attachable to the hose, adapted for carpets, chairs, walls, or bedding, as the case may be.

Nothing is said about cleaning clothing, but there is no perceptible reason why the process would not serve that purpose.

The sanitary feature of this mode of cleaning, in that it removes dust from the house and destroys it, is dwelt upon. The London *Lancet* considers the system of sufficient importance to particularly describe and approve it.

The machines and apparatus are at present only leased and in no case sold by the cleaner company.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *April 25, 1903.*

COMMERCIAL EDUCATION IN EUROPE.*

SWITZERLAND.

Commercial education has developed very rapidly in Switzerland during the past ten years. The merchant unions have been active in this respect, and in many cases have received Government aid. The Government also gives stipends to especially bright students to enable them to continue their studies at some higher institution of learning.

The first commercial school in Switzerland was established in Zurich in 1855 in connection with the cantonal school of that city.

* For other reports of this series by Commercial Agent Harris, see *ADVANCE SHEETS* Nos. 915, 1373, 1573, and 1628; for reports on commercial education by other consular officers, see also *ADVANCE SHEETS* Nos. 1285, 883, 401, 329, 366, and 251; *CONSULAR REPORTS* Nos. 200, 202, 167, 174, 181, 185, 177, 197, and 189.

In 1856 a similar one was founded in St. Gall, and another in Berne during 1857. In 1900 there were seven commercial schools which received Government subventions—namely, Berne, Chaux-de-Fonds, Geneva, Nauenburg, Solothurn, Winterthur, and Lucerne. These schools are attended annually by about 500 pupils. The assistance given by the State amounts to \$12,000 a year, \$1,000 of which is in stipends. It is to be expected that these schools will shortly be extended to all the other cities of importance in the country. Switzerland, in point of population, industries, and commerce, may be favorably compared with the Kingdom of Saxony. That little Kingdom, however, stands in the front rank of nations as far as commercial education is concerned, having 51 finely organized commercial schools.

The subjects taught in the commercial schools of Switzerland cover all the branches employed in training young men for business life. The subjects of materials of commerce, commercial geography, commercial law, and political economy are also taught. Special attention is paid to languages. The salaries of teachers amount to from \$540 to \$870 per annum. Apprentices in some of the Cantons (for example, Basel and St. Gall) are admitted free of tuition. Foreigners are also admitted, but are obliged to pay double tuition. Examinations are held and diplomas given at the end of each year.

In some of the cities in Switzerland—for instance, Berne, Biel, and Zurich—commercial classes have been organized in the higher schools for girls (Höhere Mädchenschulen). These departments receive no State aid.

The primary commercial schools in Switzerland—that is, those which are to be compared with schools of this class in Germany, which I described in the last report of this series*—are attended by the following number of apprentices:

I. The attendance in the obligatory primary commercial schools, including girls, is about 20,000 in round numbers.

II. The attendance in the voluntary primary commercial schools is 25,000.

The subjects taught in the Swiss primary commercial schools or classes are arithmetic, reading, geography, and elementary book-keeping. In 1890 the merchant unions in Switzerland expended about \$30,000 for this class of schools; in addition, the Government granted \$10,000. Instruction is usually given either in the early morning or after business hours in the evening. The public school teachers are generally enlisted to give instruction and receive as extra compensation about \$50 per quarter.

* See ADVANCE SHEETS No. 1628.

NETHERLANDS.

There are three public commercial schools supported by the State—in Amsterdam, Rotterdam, and Enschede. The school in Amsterdam is independent, while the other two are connected with the public schools of Rotterdam and Enschede. The following table, with subjects and number of hours per week, explains itself:

Subject.	Amster- dam.	Enschede.	Rotter- dam.
	<i>Hours.</i>	<i>Hours.</i>	<i>Hours.</i>
Dutch	3		4
French	5	4	4
German	4	4	4
English	4	4	4
Bookkeeping	3	3	3
Commercial arithmetic.....	3	3	3
Chemistry and materials of commerce.....	3	6	2
Commercial geography.....	2	2	2
Natural history.....		1	1
Political economy and commercial law.....	2	2	2
History of commerce.....	2		2
Penmanship.....	1	4	2
Total	32	33	33

AUSTRIA-HUNGARY.

The primary commercial schools in Austria which receive State subventions are in the following towns:

Klagenfurt.	Pettau.	Marburg.
Cilli.	Salzburg.	Steyr.
Gmunden.	Neustadt.	Bodenbach.
Budweis.	Eger.	Jungbunzlau.
Karlsbad.	Tetschen.	Troppau.
Znaim.	Laun.	Tautenau.
Saaz.	Rumburg.	Leitmeritz.

There are a number of others in towns which I have been unable to locate.

The number of advanced commercial schools in Austria subsidized by the State is as follows:*

Trieste.	Trient.	Cracow.
Reichenbach..	Prague.	Linz.
Innsbruck.	Graz.	Chrudim.

A law exists in Hungary which says that where there are 50 apprentices in any one community, instruction in commercial subjects must be provided. The course of instruction must be maintained, even if the number of pupils should at any time fall below 50, provided that the outlook is that this standard may be regained. The

* There are some three or four in addition to these.

time spent by an apprentice in Hungary in learning his trade is three years, as in most other countries. During the year there must be at least ten months of uninterrupted instruction. The months of July and August constitute the vacation period; other vacation days are: Christmas, from December 20 to January 2; Easter, one week; and Whitsuntide, two days. The birthdays of the Emperor and Empress, as well as of a number of other personages, are also kept as holidays.

As soon as a child is registered as an apprentice, it is the duty of the master to send him to one of the apprentice trade or commercial classes. Apprentices are compelled by law to attend the public school every day until the age of 12 has been reached. There is a law, however, which prevents a child under 12 years of age from becoming an apprentice, but a great many children become such by special permission of the municipal authorities. Apprentices must have completed the public school course by 12 years of age, must have a knowledge of arithmetic, and must be able to read and write readily. In exceptional cases, where an apprentice has not completed a public school course, the director of the school may admit him as a pupil if he can read and write sufficiently. In towns where no commercial schools exist, apprentices after 12 years of age are compelled to attend advanced classes in the public schools; they must attend school during the entire time of their apprenticeship.

The commercial schools or classes usually occupy rooms in the public schools. The public school teachers are employed, more or less, to give instruction. In schools where independent teachers are employed, the positions are for life. Teachers from the public schools are, in most cases, only temporarily selected.

The subjects taught in the advanced commercial schools in Hungary are the following:

Subject.	Number of hours per week.	Subject.	Number of hours per week.
Religion	1	Active office work.....	1
Hungarian language.....	4	Bookkeeping	1
German	4	Commercial correspondence.....	2
French	4	Political economy.....	1
Commercial geography.....	2	Chemistry.....	1
History of commerce.....	2	Materials of commerce.....	2
Mathematics	2	Writing.....	2
Natural history.....	2		
Commercial arithmetic.....	4	Total.....	34

BELGIUM.

There are several institutions in Belgium in which only commercial branches are taught. The Higher Commercial Institute in Antwerp, which may be placed in this class, was founded in 1852 by the joint efforts of the Government and the municipal authorities.

Pupils who have completed the higher public schools are admitted without examination. The course of instruction occupies two years, at the end of which time each pupil receives a diploma. The number of pupils averages about 300, only one-half of whom are natives of Belgium. After the course has been completed, young Belgians who have shown special aptitude in their studies may become candidates for a stipend granted by the Government, which will enable them to reside for a short time in some foreign country to more thoroughly fit themselves for active business.

The Commercial Institute of St. Ignace, in Antwerp, was founded by the Jesuits in 1852. The course of instruction lasts six years. A commercial museum has been established in connection with the school. Examinations are held by a committee, and written testimonials are issued to those who complete the commercial courses.

The commercial school in Melle was founded as long ago as 1837. It has been attended by about 1,000 pupils since that time, and many of them are to be found to-day holding responsible and profitable positions in large commercial houses.

In 1868, an institute for languages and commercial sciences was founded in Liege. The curriculum includes the following subjects:

Commercial arithmetic.	Tariff law.	Political economy.
Commercial geography.	Civil law.	Commercial law.
English.	German.	French.
Flemish.	Italian.	Spanish.

Instruction takes place in the evening after business hours. The school is coeducational, having about 350 male and 50 female students.

In addition to these schools, a great many classes have been organized in Brussels, Antwerp, and Ghent, which give instruction in languages. There are many schools of a private nature established by Catholic priests, in which languages, bookkeeping, and other commercial subjects are taught. Higher institutions of learning in Belgium also devote much attention to commercial education. The school of mines in Mons, the naval schools in Ostend and Antwerp, and the agricultural school in Gembloux all teach languages, commercial law, and commercial geography. In the State universities of Liege and Ghent, as well as in the universities in Löwen and Brussels, lectures are given on national political economy, commercial geography, statistics, finance, commercial law, and mathematics. The Government decided to have these lectures in the universities, as they gave young men a better preparation for the consular service. There are about forty State schools for girls in Belgium where attention is paid to commercial subjects. In the few primary commercial schools which have been established—for example, in Verviers and Liege—girls are also admitted.

NORWAY AND SWEDEN.

The public commercial-school system which exists in Norway is about 27 years old, dating from the establishment of the Commercial Institute in Christiania in 1875. Prior to that event, commercial branches were taught chiefly by public school teachers and others in private lessons. Well-to-do people, who could afford it, sent their sons to Dresden, Leipzig, Lübeck, Copenhagen, and other foreign cities for special training in large business houses. In 1900 there were three public commercial schools in Norway, namely, in Bergen, Christiania, and Bodö. The course of instruction in each lasts two years. The following table shows the subjects taught:

Subject.	Chris- tiania.	Ber- gen.	Bodö.
	<i>Hours.</i>	<i>Hours.</i>	<i>Hours.</i>
Political economy.....	2	2	.....
Commercial law.....	2	2	2
Commercial arithmetic.....	4	4	5
Bookkeeping.....	4	4	6
Materials of commerce.....	1	1	1
Chemistry.....	2	1	2
Commercial geography.....	1	1	.....
History of commerce.....	1	1	.....
Norwegian.....	4	3	3
German.....	4	4	2
French.....	4	4	2
English.....	3	4	2
Drawing.....	.....	.....	2
Religion.....	.....	2	.....
Stenography (elective).....	2	.....	.....
Spanish.....	1	.....	.....
Penmanship.....	2	1	2
Physics.....	1	.....	3
Total.....	38	34	32

There are two well-organized commercial institutions in Sweden, namely, at Stockholm and Gothenburg. Each school receives an annual subsidy of \$2,000 from the Government and, in addition, donations from merchant organizations. The same subjects are taught as in the commercial schools of Norway.

FRANCE.

Commercial education is a subject which has received much attention in France since 1870. The Government has founded no schools of this kind, but it has encouraged the work of the chambers of commerce in this direction. There are three groups of commercial schools in France, namely:

- I. Primary commercial schools.
- II. Commercial schools.
- III. Advanced commercial schools.

Primary commercial schools.—These are located in almost every city of France which has any commercial or industrial importance. The subjects taught and the number of hours devoted to each study per week in most of them are:

	Hours.
French	1
Commercial arithmetic.....	3
Commercial correspondence.....	1
English	3
German	3
Spanish	2
Italian	2
Total.....	15

These schools are nearly all coeducational. The teachers are recruited from merchants and public school instructors. Many of the schools have good libraries. After finishing these courses, the girls easily find positions in large business houses, where many of them draw salaries as high as \$500 a year.

Commercial schools.—Most of the institutions of this class in France are connected with industrial schools. Boulogne is the only city in which the commercial and industrial schools are not in the same building. There are 14 commercial schools of this class at present in France, and 7 for girls. They are:

School.	Pupils.	School.	Pupils.
	Number.		Number.
Beziers.....	70	Le Mans.....	40
Agen.....	67	Mazamet.....	78
Boulogne	100	Narbonne.....	40
Cette.....	50	Nimes.....	109
Tourmies	50	Rheims	40
Grenoble.....	88	Romans.....	30
Limoges	120	Lyons.....	

The commercial schools for girls are situated in Boulogne-sur-mer, Havre, Marseilles, Nantes, Rouen, St. Etienne, and Lyons. It costs about \$2,000 a year to maintain one of these schools.

Advanced commercial schools.—In 1900 there were eight commercial schools which belonged to this group. They were the following:

1. Paris—Commercial academy.
2. Paris—Advanced commercial school.
3. Paris—Commercial institute.
4. Lyons—Advanced commercial school.
5. Bordeaux—Advanced commercial school.
6. Havre—Advanced commercial school.
7. Lille—Advanced commercial school.
8. Marseilles—Advanced commercial school.

The following are the subjects taught in these schools:

Drawing.	Physics.	Political economy.
Commercial law.	Geometry.	Chemistry.
Materials of commerce.	Penmanship.	History of commerce.
Arithmetic.	Algebra.	Foreign languages.
Bookkeeping.		

The course lasts two years and the hours of instruction average about thirty each week.

RESULTS OF COMMERCIAL EDUCATION IN BELGIUM.

A comparison of what the different countries are doing for commercial education, as described in the foregoing, brings out preeminently the practice of the Institute of Commerce in Antwerp. Students who have passed their final examinations with credit are entitled to offer themselves as candidates for a stipend which permits them to remain for three years in some foreign country for the purpose of studying economic conditions and acquiring a practical knowledge of business. All that is required of them, as far as the Government is concerned, is to report from time to time on the results of their observations. About 70 students have thus far been able to take advantage of this exceptional privilege. The stipend consists of \$1,000 a year. These young men have gone out in the interests of Belgium's commerce to Brazil, China, Japan, Mexico, Philippine Islands, Australia, New Zealand, India, the United States, and Canada. Some 30 of them have made permanent homes in the countries to which they were sent. Some have become merchants, others commercial agents, and not a few are in the service of the Japanese and Chinese Governments as educators. To Belgium, however, they remain the pioneers of commerce, and the money thus expended draws ample interest. The far-reaching results achieved prove the wisdom of the policy.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *May 21, 1903.*

GERMAN COLONIAL SCHOOL AT WITZENHAUSEN.

In CONSULAR REPORTS Nos. 230 and 256,* short notices appear concerning this school. The importance of this institution, however, would seem to justify further details in regard to it. The *Deutsche Kolonialzeitung*, under date of April 2, contains an article from which I have taken the following facts:

The colonial school was founded at Witzenhausen in 1899 with the express purpose of preparing practical farmers and planters,

*ADVANCE SHEETS No. 1193.

stock raisers, and wine and fruit growers who might become settlers in the German colonies. Since that time more than three years have passed and the school has had an opportunity to demonstrate its utility.

Fifty-four students of the institution have already gone out into different parts of the world. Some of them have independent positions and some are employed in large commercial houses or are voluntarily serving as apprentices with farmers and stock raisers. Students of the school are to be found in South Africa, southern Brazil, Samoa, Sumatra, East and West Africa, Mexico, Paraguay, etc. Two have become farm-land inspectors—the one for the whole district of Lindi, in East Africa, and the other for the district of Dar-es-Salaam; another is manager of a large farm in southwest Africa. The Vietor Commercial and Plantation Company and the Douglass Cotton Plantation Company, in Bremen, have several former students of the school in their service. Another is general manager of a large plantation in Asuncion, Paraguay, and another has been appointed by the German Government to superintend the planting of gardens and forests on the hills surrounding Tsintau, in Kyao-chau. One young man has established himself as a planter in Samoa and another is looking after the interests of a plantation company in that island. Still another is an American custom-house officer in the Philippines. There is one tobacco planter in Sumatra, one coffee grower in Mexico, and one merchant and stock raiser in the Orange River Colony, in South Africa. In addition, the colonial school has sent out young men to Kamerun, Bismarck Islands, etc., as clerks in the Government service.

The instruction in the school is theoretical and practical. The course lasts two years. It is so arranged that the theoretical instruction comes in the winter and the practical instruction in the summer. The subjects chosen for lectures are those which will add to the pupil's knowledge of tropical plants and agriculture and of colonial enterprises and politics. The curriculum of study contains such branches of learning as chemistry, botany, and physics. The institution is well supplied with laboratories and has gardens for the study of forestry and vine growing. Students are compelled to learn English, while all other languages are elective.

The blacksmiths, cabinetmakers, shoemakers, and carpenters of the little town of Witzenhausen have opened up their shops to the students, who work as apprentices, so to speak, during the hours set apart for such work. The principles of all these trades are so thoroughly taught that the young colonist will be able in case of necessity to turn his hand to anything. A large farm has been purchased for the use of the school, where agriculture is studied in all its

details. Gardens, vineyards, and even forest nurseries are in charge of the students. They have assisted in planting over 70,000 young trees during the past two years.

An old cloister in Witzenhausen has been purchased and fitted up with dormitories and all modern appliances for the use of the students. They associate daily with the teachers, who personally look after the welfare of their charges. The school is attended at present by 59 students. The youngest is 17 and the oldest 27 years of age.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *May 23, 1903.*

BAGDAD RAILWAY AND GERMAN COMMERCE IN ASIA MINOR.

There exists to-day a railroad from Constantinople to Konia, in Asia Minor, which is called the Anatolian Railway. It has branches to Smyrna and Angora. German financiers have succeeded in getting a concession from Turkey to continue this route from Konia to Bagdad, and eventually through to Koweit, on the Persian Gulf. A corporation for the purpose of building the road has been formed in Constantinople, under the name of the Imperial Ottoman Bagdad Railway Company,* with a capital of \$3,000,000. Its president is one of the managers of the German Bank in Berlin. The Anatolian line to Konia will not be merged in the larger concern, but its co-operation with the new enterprise has been assured. The approximate cost of the railroad is \$90,000,000, and it will be about 1,800 miles in length.

It is claimed that when the enterprise is completed it will bring India three days nearer London. It will shorten by fourteen days the journey by camel train from Aleppo to the valley of the Lower Euphrates, where almost every square mile of land has its interesting ruin or hidden treasure. Speaking of the country between the Euphrates and Tigris, the Chemnitzer Tageblatt says:

The railway will pass through one of the oldest and richest countries in the world. The most fruitful part of what was once ancient Mesopotamia is that part of the country between Ursa and Mosul. So regular and plentiful are the rains that out of every six or seven harvests only two fall short. In other portions of the country rain is not so frequent, and the soil must be nurtured by irrigation. The land is adapted to raising wheat, barley, rice, and cotton. A territory as large as Saxony and Italy together will be opened up to German markets.

* See ADVANCE SHEETS Nos. 1219 and 1290.

To find the shortest way to India is an achievement which has occupied the attention of European commercial nations since the earliest times. The highway built by the Persian satraps, the success of Vasco de Gama in finding a water way around Africa, and the construction of the Suez Canal mark epochs in the development of European commerce with India. The construction of the Bagdad Railway will probably be fraught with equally great results, as it will not only serve as a connecting link between the Black Sea and the Persian Gulf, but it will tap a large territory which in recent times has been of practically no value to the commercial world at large.

GERMAN COMMERCE WITH TURKEY AND ASIA MINOR.

In 1901 German imports from Turkey and Asia Minor amounted to \$1,642,200, or 5 per cent of Germany's total imports. During the same year Germany's exports to Turkey and Asia Minor amounted to \$8,806,000, or 8 per cent of her total exports.

The following tables will give a good idea of the principal articles in the trade during 1901:

Imports into Germany.

Article.	Quantity.	Value.
	<i>Tons.</i>	
Fancy-colored goods.....	791	\$141,372
Barley	8,266	221,132
Rye	5,874	148,274
Goatskins	908	173,454
Carpets	215	331,538

Exports from Germany.

Article.	Quantity.	Value.
	<i>Tons.</i>	
Chemicals.....	173	\$131,376
Woven goods.....	689	606,662
Hosiery	253	337,960
Ironware.....	3,618	943,336
Cotton goods.....	439	400,559
Clothing, underwear, etc.....	36	139,468
Leather	89	211,816
Silks, mixed.....	22	138,516
Linens	802	1,336,846

The Anatolian Railway has already been the means of furthering German commerce in Asia Minor. Every year this railroad moves 250,000 tons of grain, 100,000 tons of rock salt, and 40,000 tons of wool from the interior to the seaboard. These same trains return with 9,500 tons of ironware from Germany, 6,000 tons of petroleum from Russia, and 4,500 tons of sugar from Austria. A direct steamship line, consisting of 20 well-equipped vessels, was established

in 1889 between German and Levantine ports. A German bank was established some years ago in Jerusalem, which exchanged \$15,000,000 worth of money in 1901. Many thousand German colonists are earning a livelihood in Asia Minor to-day as merchants and horticulturists.

AGRICULTURAL POSSIBILITIES OF ASIA MINOR.

The claim is put forth by many that the agricultural development of Asia Minor will relieve Germany of her dependence upon the United States for her cotton and grain supply. The following is translated from Siegmund Schneider's *Deutsche Baghdad-Bahn*:

What Turkey has already sold to the world in breadstuffs is as nothing compared with what she can produce when her enormous agricultural resources have been developed. Of all agricultural states, Turkey is perhaps the only one which may be able some day to compete successfully with America in England and on the continent of Europe in this respect. Especially is this the case in the production of cotton, which is such an important factor in the textile industries of Germany, which demand \$75,000,000 worth of imported cotton every year. A blockade of the Southern States to-day similar to the one from 1861 to 1865 would be a disaster which would involve the existence of at least a million German families of the working class. Germany's absolute dependence upon America and Russia for petroleum would be materially lessened if the oil and bitumen fields of Mesopotamia were rationally exploited. Unless appearances deceive, the tapping of this oil territory alone would make the projected railroad a paying one.

The construction of a railway bridge over the Bosphorus, in connection with the Bagdad Railway, would create at one stroke one of the most important railroad routes in the Eastern Hemisphere. It will take an express train five days to reach Bagdad from Berlin. With proper railway facilities, one will be able to reach Tonkin from Paris in fifteen days.

The agricultural development of Asia Minor need give no American farmer or cotton grower apprehension. What India, Egypt, and Caucasia fail to do, Asia Minor will hardly succeed in doing. The influence of the Bagdad Railway will be confined chiefly to the Orient. If it leads to an increased output of grain and other necessities of life, the capacity for consumption on the part of the 15,000,000 inhabitants of Asia Minor will, in all probability, keep pace with the production.

CITIES ON THE BAGDAD RAILWAY.

Konia.—The commercial importance of Konia at present rests upon its favorable location. It has over 35,000 inhabitants and a glove and hosiery industry of considerable extent.

Eregli.—This town is located in a territory which abounds in coal. The mines are worked at present partly by the Turkish Government and partly by private enterprise. It is hoped that the railway will give new life to this industry. As there are no other coal

beds in Anatolia, only favorable transport facilities are necessary in order to supply the cities of Asia Minor with coal.

Adana.—This city is already connected with the seaport town of Mersina by a railroad. About \$3,332,000 worth of cotton and grain passed over this road last year. Mersina is one of the most important seaport towns in Asia Minor, with good shipping facilities with the rest of the Levantine ports. Adana has a population of 60,000, mostly Armenians.

Tarsus.—Halfway between Adana and Mersina is Tarsus. It has 25,000 inhabitants and a flourishing trade in the chief products of Anatolia. The city is rich in buildings of ancient architecture.

Aintab.—This town is the seat of the American Evangelical Mission. It has about 30,000 inhabitants. An extensive caravan trade in cotton and leather products is carried on with neighboring cities.

Mosul.—The chief articles of commerce in Mosul and vicinity are dates, hides and skins, textiles, etc. Coffee, indigo, sugar, and dates are produced in abundance, while the number of sheep in the surrounding country is estimated at some 3,000,000 head. The exports from the city in grapes, grain, figs, and goatskins amount to \$1,190,000 annually. Mosul imports \$500,000 worth of English goods, chiefly from Manchester, every year. Many Turkish firms are engaged in the leather business. Mosul is the seat of Austrian, French, English, and Italian consulates.

Bagdad.—The city of Bagdad has a population of about 130,000 people. The chief articles of commerce are tobacco, carpets, silks, velvets, shawls, cloths, and drugs. The following will give a good idea of the principal goods which Bagdad imports from abroad:

From England, piece goods, chemicals, copper, lumber, ironware, candles, alum, tin, coal, and glass.

From France, sugar, quicksilver, and fancy goods.

From India and China, raw sugar, zinc, tea, and lead.

From Persia, tobacco, lemons, opium, silk goods, carpets, mohair, and wool.

The traffic of Bagdad, especially exports, is carried on chiefly by water. With a few exceptions, exported articles are taken down the River Tigris to Bassorah, where they are loaded on ocean vessels bound for India and Europe. The Tigris is navigable from Bassorah to Tekrit, halfway between Bagdad and Mosul.

The German Bagdad Railway project is occupying public attention in the Empire more than any other question at present. English capital and English cooperation are almost indispensable from the financial standpoint. There is no question that British commercial interests would be severely affected by the railway, in the beginning at least. Over 50 per cent of the foreign trade of Asia Minor is in

English hands. If the Turkish Government should guarantee the bonds of the Imperial Ottoman Bagdad Railway Company, the customs of the Empire must inevitably be raised. If the British Government should eventually send the Indian mails by this route, it would be a direct blow to the Peninsular and Oriental Steamship Company, and just at this time, when England is doing all in her power to meet the competition of the German lines and the American steamship trust, such action on her part is altogether unlikely. Yet these are elements essential to the success of the railway in the long run. The freight and passenger traffic, although it will unquestionably be large, can not of itself be sufficient.

EIBENSTOCK, *May 5, 1903.*

ERNEST L. HARRIS,
Commercial Agent.

FISHING IN ALGERIA.

FISH.

The coast fisheries in Algeria in 1902 employed 1,106 boats and 4,710 men, about 50 boats and 325 men more than in the preceding year.

The value of the catch, which was 2,762,349 francs (\$533,133) in 1901, was 2,879,191 francs (\$555,684) in 1902, an increase of 116,842 francs (\$22,550). Among the fish caught are sardines and bonitas. Anchovies were totally missing.

CORAL.

There was no coral fishing in the zone opened by the decree of March 15, 1899. This was due doubtless to the fact that the banks had been overworked for several years, and also to the depreciation in the market price of coral.

PORPOISES.

The question of dealing with porpoises has been a source of anxiety. All the methods of destruction employed—firearms, harpoons, Belot needles, and poisoned baits—have given poor results. The system of giving fishermen an indemnity for the loss of their nets has proved more satisfactory.

ALGIERS, *May 25, 1903.*

DANIEL S. KIDDER,
Consul.

IRON IN THE SUDAN.

A discovery of iron ore is announced in the Bahr-el-Ghazal province of the Sudan. The analysis of specimens brought down some months ago and now in the office of Count Gleichen, director-general of the Sudan government intelligence office, gives 43.47 per cent of pure iron, which is pronounced by the authorities to be very good.

Count Gleichen, to whom I am indebted for the information herein contained, says that iron is found in the Sudan, in Kordofan, the Bahr-el-Ghazal, Darfur, and on the Abyssinian border.

Kordofan.—There are now two ore beds, one almost 60 miles to the northeast of El Obeid and the other about 60 miles to the northwest. The ore is brown hematite and is found in small fragments at a little depth in the sand. It may exist in large quantities. This iron can never be worked economically, as there is no fuel or material for building furnaces, nor could it be shipped with profit without a railway. It is not worked at present except in small quantities by the natives.

Bahr-el-Ghazal.—The Bongo country lies between 6° and 8° north latitude on the southwestern boundary of the depressions of the Bahr-el-Ghazal basin, and on the lowest terraces of ferruginous crust bordering on alluvial land. The area is about the same as that of Belgium, but it is a deserted wilderness. In 1870 it averaged only 11 or 12 inhabitants to the square mile. Much of the time of the natives is devoted to the working of iron, which is found in great abundance in Bongoland. They manufacture arms and tools of excellent quality. Their smelting furnaces are made of clay, and the iron is afterwards worked on anvils of gneiss or granite by hammers of stone or iron, rude bellows being used for the purpose. The Jur country, northeast of Bongoland, now sparsely inhabited, is the lower terrace of the ferruginous formation, from which the natives extract a large quantity of iron. They are all smiths by profession, and they produce a metal excellent in its homogeneity and malleability. Iron smelting is carried on in March, just before the sowing season.

Darfur.—Browne (about A. D. 1790) traversed the great Libyan Desert and the deserts of Nubia west of the Nile till he reached Darfur—the first European scientist to set foot in that strange country. He notes the presence of rock salt, saltpeter, and iron ore in Darfur. The method of working the latter is identical with that employed in Kordofan, but it appears to be inferior in quality and very brittle.

Abyssinian border.—Iron ore is extracted in the plains surrounding Fadassi (on the Abyssinian side of the border, south of Beni Shan-gul) at a considerable depth from the surface. From the description, it must be identical with the bog-iron ore encountered in Kordofan.

The Gallas, who possess large herds of cattle and a multitude of small but sturdy little horses, work this ore into iron, as in Kordofan.

The discovery of minerals in the Sudan has attracted the attention of American business men and capitalists. Inquiry has been made as to an analysis of iron ore reported by the trade journals as showing 62.1 per cent of oxide of iron, and it is with a view to correct, as far as I can, errors of this nature that I submit this report.

CAIRO, May 21, 1903.

JOHN G. LONG,
Agent and Consul-General.

COMMERCE OF EGYPT.

The Egyptian customs returns for the first quarter of 1903 have just been issued. The total amount of goods imported into the country during the period under review was \$17,078,745, as against \$14,935,760 in the corresponding period last year, or an increase of \$2,142,985. The total exports during the quarter were \$27,646,400, as compared with \$24,282,045 during the same period in 1902, an increase of \$3,364,355. The merchandise reexported was valued at \$811,685 and the merchandise which passed through in transit at \$960,560.

IMPORTS.

The total imports from Great Britain during the quarter were valued at \$7,518,250, against \$6,355,985 during the corresponding quarter in 1902, showing an increase of \$1,162,265. The next largest exporter to Egypt was Turkey, imports from that country totaling \$2,183,515, an increase of \$203,555 over last year. France came third, with exports to the value of \$2,170,795. This was a considerable increase over the figures for the first quarter last year, viz, \$1,605,145. The imports from Austria-Hungary were valued at \$1,247,620—a slight increase over last year. Imports from Italy amounted to \$947,830, or \$29,390 less than last year. Imports from Germany were valued at \$628,725, as against \$581,355 during the corresponding quarter last year. Imports from the United States were valued at \$386,080, as against \$179,870, showing that we have more than doubled.

Cotton fabrics occupy the first place in the import trade, the total amounting to \$2,908,740. England furnished nearly the whole of this, viz, \$2,795,175. The imports of woolen fabrics were valued at \$290,805, England supplying \$146,140. Cotton thread to the value of \$286,375 was imported during the quarter, \$227,135 of it coming from England. The imports of silk goods were \$212,550, the largest proportion coming from Italy. Iron and ironmongery imports totaled \$1,627,355, and over two-thirds of this came from England. The value of the petroleum imported was \$338,445, the bulk of it being supplied by Russia. Flour imports were valued at \$800,815, and France was the largest exporter in this line, as also in wine, the total of which was valued at \$243,145. The spirits imported came to \$24,185 and other liquors to \$177,230, while the beer imports totaled \$77,960. Soap was valued at \$65,505; cheese, \$135,675; butter, \$62,990; candles, \$67,075; boots and shoes, \$109,350; and sacks, \$118,640.

EXPORTS.

The exports from Egypt during the quarter amounted to nearly \$28,000,000, which is an increase in value of \$3,400,000 over the figures for the corresponding quarter last year, and show that Egyptian trade is recovering from the semistagnation following the cholera epidemic. As Great Britain was the largest seller to Egypt, so it was the largest buyer, the amount of its purchases during the quarter totaling \$14,765,605, or \$1,965,640 over last year. The next largest purchaser from Egypt was France, the value of the exports to that country being \$2,270,365; then came Germany, with \$2,171,765; Russia, \$1,683,395; and the United States, \$1,720,330, or nearly a third more than last year.

The largest exports during the quarter took place naturally in cotton. The quantity of this product exported was 1,826,170 cantars (227,723,399 pounds), valued at \$23,847,310. Almost one-half went to England. Of cotton seed, 687,194 ardebs (5,285,012.8 pounds), valued at \$1,984,290, were exported—629,809 ardebs (4,843,672 pounds) to England. No less than 72,148,000 eggs were exported during the quarter, representing a value of \$450,930. This trade ranked next in importance to that of cotton, outdoing gum arabic, the exports of which were valued at \$269,665, representing 2,246,324 kilograms (4,952,246 pounds). Nearly the whole of the eggs were taken by England, which also took one-fourth of the exports of gum arabic. The exports of onions (13,435 tons) were valued at \$801,540; sugar cane, \$166,265; rice, \$156,420; beans, \$197,280; Sudan beans, \$28,770; tomatoes, \$34,170; maize, \$20,140; molasses, \$13,880; lentils, \$17,330; corn, \$13,520; flour, \$3,365; henna, \$16,255; natural wool, \$46,945; and dates, \$1,680.

HARDWARE.

The hardware trade of Egypt is worth the attention of American manufacturers and business men.

The total value of ironmongery imported into Egypt for 1899 and 1901 was £88,571 (\$437,806) and £125,188 (\$668,234), respectively. This gives an increase of 52 per cent in two years. Great Britain increased her share of the imports by 61 per cent, Germany by 90 per cent, Austria by 72 per cent, and Belgium by 94 per cent. America, France, and Italy lessened their shares by 44, 6, and 13 per cent, respectively. Great Britain's share in 1901 was £57,784 (\$285,326). Belgium came next with £36,636 (\$181,092), while Germany followed with £19,364 (\$95,716) and France with £15,549 (\$76,859). The latter country is now supplying Egypt with articles of cutlery, tools, coffee mills, small machines, and similar goods at cheap prices, which will be likely to hold their place in the market. Belgium is the chief source of supply for bar and angle iron and sheet steel.

American manufacturers, I believe, could compete successfully in the supply of iron and steel bars, iron and steel sheets and plates, angle, bolt, and rod iron, steel girders, and nails.

French platform machines are employed throughout Egypt and seem to have the preference over others. In this line of business there is a splendid opportunity for cheap hand balances, cheap counter scales, and cheap steelyards and platform machines, with wood fittings large enough to hold a sack of cotton. In the supply of locks, bolts, and other fittings, England and Germany seem to hold the market.

The goods supplied by Germany include locks and keys of the commonest description, but serving as a means of keeping the doors and windows shut; also window bolts, hinges, window catches, hooks, hasps, and staples, door knobs of inferior pattern, and other articles of untrimmed cast iron. There should be a good opening for the better class of locks and hinges. The only reason why a fair American trade does not exist in these at present seems to be the total lack of agents, nearly all manufacturers of these goods doing business through shippers. The total value of locks, bolts, etc., imported into Egypt in 1899 and 1901 was £60,390 (\$298,508) and £73,603 (\$363,820), respectively, showing an increase of 22 per cent in two years. England's share fell 4 per cent, America's 13 per cent, and Belgium's 33 per cent, while Germany, Austria, France, and Italy increased their shipments by 161, 109, 13, and 122 per cent, respectively. Germany led in 1901 with goods valued at £25,194 (\$124,534); England followed, with £22,925 (\$113,319); France, with £13,714 (\$67,788); Belgium, with £8,197 (\$40,518); and Austria,

with £2,307 (\$11,404). If manufacturers would visit Egypt or obtain reliable agents and act upon their advice, some of the peculiar characteristics of the trade would be learned. The knowledge of climatic differences and of the habits of the people would enable American firms to send such goods to this market as are eagerly demanded.

It must be remembered that in Egypt operations are carried out by men of small means; consequently, it is but reasonable that they should select the article which will serve their purpose, though it may not be of the best quality. One of the most important laws of commerce is that merchants should supply their customers with what they want and lay aside their own ideas as to what they ought to have.

CHEMICALS AND MEDICINES.

The customs returns for the last few years show that the imports of chemicals into Egypt are rapidly increasing. The average total imports for the last five years amounted in value to \$182,500, while in 1901 they rose to \$329,985. Although the annual returns for 1902 are not yet published, the monthly returns for the period show that there has again been a large increase, especially during the autumn, owing to the cholera epidemic. The annually increasing demand for patent filters, disinfectants, refrigerators, laundry materials, electrical apparatus, photographic materials, and medicines gives the prospect of a corresponding increase of the chemical trade, and there is no reason why America should not gain part of it. The principal chemicals imported into Egypt are sulphuric, nitric, hydrochloric, and tartaric acids; borax, sal ammoniac, sublimate, alum, sulphates of iron and magnesia, corrosive sublimate, soda crystals, caustic soda, phenic acid, and aniline colors. According to the bulletin of the French Chamber of Commerce, the following are the current prices, f. o. b. Alexandria, of the principal articles: Borax, £15 (\$73) per ton; sulphate of iron, £6 (\$29.19) per ton; bicarbonate of soda, £7 6s. (\$35.52) per ton; and sal ammoniac, £42 10s. (\$206.82) per ton, supplied in 100-kilogram (220-pound) barrels. England supplies most of these products, as well as ammonium carbonate and sulphate of magnesium. England's supplies amount to about one-half of the whole import into Egypt. In 1899 they were \$92,800 and in 1901 \$156,885. France supplies most of the sulphuric, nitric, and hydrochloric acids. The value of its exports in 1901 was \$56,925—nearly double that of 1899. Belgium sends most of the soda crystals, caustic soda, ammonia at 29° (for the manufacture of ice), and lead acetate, as well as several pharmaceutical and photographic requirements. Its share in the trade in 1901 was \$29,915, which also almost doubled in the last two years. Germany's share

in 1901 was \$27,710; in 1899 it was \$20,405. It has practically the monopoly of aniline dyes. Connected with the chemical trade proper is that in medicines and pharmaceutical articles. Under this heading, the total imports into Egypt in 1901 were valued at \$146,085, an increase of but \$25,000 in two years. In 1902 there was a large demand for anticholeric medicines and disinfectants.

All American medicines, etc., should be accompanied with simple instructions printed in the language of the country to which they are sent. Directions for articles for use in Egypt should be printed in Arabic, French, and English. Should any difficulty be experienced in carrying out this advice, arrangements should be made with the agent in Egypt to supply the printed matter in the language and wording best understood by the people here. France exported hither medicines and pharmaceutical articles to the value of \$50,080 in 1899 and \$54,015 in 1901. England's exports for the same years amounted to \$23,955 and \$44,325, respectively. Germany suffered a decrease of 50 per cent in its trade during the last two years, having fallen from \$26,015 to \$12,050. Austria, its rival in many articles, has increased from \$9,120 to \$17,006. Italy, the only other serious competitor, exports about \$12,500 worth of goods to Egypt annually, but with little variation. The large number of American tourists should create a demand for certain well-known American articles, but, except in one or two first-rate pharmacies, these are often unknown. This refers particularly to soaps, patent medicines, and toilet preparations.

WINDMILLS AND PUMPS.

The great difficulty in handling American goods in this country is the time it takes to get consignments. It is unfortunate that goods can not be held in stock in order to insure quick delivery. British and European firms send large stocks to their representatives in Alexandria and Cairo, and thus have the great advantage of giving prompt delivery. Egyptian purchasers want to see in advance just what they are buying.

I have a letter now before me from a dealer of acknowledged enterprise and responsibility of Mansourah, in Lower Egypt, in which he says:

I have been trying to push the sale of American windmills, for which I am sure there should be a good market in Egypt and the Sudan. I lost a big order last summer for the war office, because I could not guarantee delivery in time. I have one fixed on my land at the Bahr-el-Sayieh, at the end of the town, as an advertisement, showing how it can work various types of pumps—bucket, centrifugal, and archemidian—grist mills, etc.

I have another at my farm working a pump for drainage, and yesterday I cabled

for two more, required for artesian wells, for which there is likely to be a demand since this late cholera scare. In most towns wells are being sunk for a supply of unpolluted water.

The wide-awake American "drummer" and direct transportation facilities would quickly give us a new and important field for trade.

MINING.

The eyes of the mining world are being turned to Egypt, and especially to the Sudan, as the possible centers of a great mining industry. Not only gold, but iron, copper, and coal are among the minerals found in the Sudan. Lord Cromer, in a recent speech at Khartoum, alluded to the prospect of finding coal in payable quantities in the Sudan. It is impossible to estimate the importance of such a discovery to the economical position of Egypt and the Sudan.

SUDAN COTTON.

The first consignment of cotton grown in the Sudan arrived in Cairo from Khartoum a few days ago. Experts who have seen the cotton report that in mercerizing qualities and in strength of fiber it is superior to the best Egyptian cotton, but that the staple is somewhat shorter. The last defect, I am informed, will probably be remedied in time by judicious crossing.

SUAKIN-BERBER RAILWAY.

The completion of the Suakin-Berber Railway, now under construction, will constitute a distinct step forward in the already rapid development of the country, as it provides a Red Sea port instead of the Nile route to the sea, as at present.

CAIRO, *May 2, 1903.*

JOHN G. LONG,
Agent and Consul-General.

FINANCIAL CRISIS IN TIENTSIN.

The financial situation in Tientsin for the last six months has been in a state of panic, owing to the dearth of ready money and the lack of confidence on the part of those accustomed to preserve the financial equilibrium of this port.

The natural result of the Boxer uprising, and the subsequent occupation of North China by the allied forces, was such universal distrust on the part of the southern merchants that the commerce of this port almost collapsed, while the Shansi bankers threw the financial equilibrium into utter confusion and panic by withdrawing their loans, which amounted to 30,000,000 taels.* This left Tientsin prac-

*The value of the Tientsin tael was given by the United States Mint, April 1, 1903, at 55.2 cents.

tically moneyless, and during the régime of the provisional government all commercial transactions were consummated by paper money, which could not be cashed except at a discount of from 25 to 30 per cent.

In spite of these untoward conditions, the situation was beginning to adjust itself, when the city of Tientsin was handed back to the Chinese authorities. Viceroy Yuan, with the assistance of the customs taotai, went to work most energetically to improve the finances of Tientsin, but, up to the present, with indifferent success, and it is thought by many—both among foreigners and Chinese—that had no attempt been made by the Chinese officials, the crisis would never have reached such an acute stage as it has at present, as the native bankers and merchants attribute the present financial collapse to official interference, which was meant to relieve the monetary strain by fixing the rate of interest without considering the law of supply and demand. Had the officials adopted a let-alone policy, it is claimed, the exceedingly high rate of interest which then prevailed would have induced capitalists to make loans and advances to the Tientsin bankers and merchants, which would thus have relieved the stringency of the money market.

On the other hand, the officials lay the blame on the merchants. The viceroy, in one of his communications to the principal officials of Tientsin who were ordered to study the situation and devise relief measures, reviews the whole situation thus:

Owing to the absence of good cash, which has been crowded out by a base and spurious coinage, causing universal distrust and uncertainty, and to the manipulations of certain unscrupulous speculators and bankers who cornered all the ready cash in the money market so that fabulous rates of interest prevailed, thus crippling all legitimate trade, the Official Bank was opened, with the object of suppressing the base coins and the usurious rates and in order to restore public confidence, which was all but lost.

Over 10,000,000,000 good large cash* were imported from other provinces and distributed by the Official Bank in exchange for the base and spurious cash then in possession of the people of Tientsin. A fair rate of interest was also fixed by the Official Bank. By these measures, public confidence was restored during the eleventh, twelfth, and first moon. Good money was plentiful, and notes and drafts were universally current.

Owing, however, to the representations of the native banking firms that the rate fixed by the Official Bank was crippling and jeopardizing the banking interest and was restricting trade, and as one of the chief objects of the bank had already been accomplished—viz, the suppression of base and spurious cash—the Official Bank was closed on the 2d of the second moon.

But hardly had ten days elapsed after the closing of the Official Bank when great financial fluctuations took place, and enormous rates of interest are again demanded by the bankers on the plea of the scarcity of ready cash. On the same plea, notes and drafts are refused payment by the banks or are cashed at a ruinous discount. The universal cry is lack of ready cash. Now the question arises, What

* 1,000 cash = 1 tael.

has become of the large quantity of new coins turned out daily by the provincial mint and the late cash imported by the Official Bank, which should prove sufficient for local circulation? This adequate stock of circulating medium must have been exported by interested parties purposely to create the present crisis, so that they might effect their nefarious schemes of profit at the expense and ruin of the public.

Measures should therefore be adopted to stop further exportation of cash from Tientsin, and the mint should be instructed to turn out as large a quantity of coins daily as possible, while the native banks should be forbidden to issue notes which they can not at all times redeem in cash. Thus only can public confidence be restored and a financial crash averted.

The viceroy, replying to a joint petition of the bankers and merchants, stated:

The present financial difficulty is attributable to a reckless issue of notes on the part of certain banks, which were unable to meet them when presented for payment. This has created a panic by the loss of public confidence and the shutting up of the public purse, which has in turn reacted upon these bankers, so that they were unable to repay the loans of the Shansi bankers and others, thus necessitating an extension of time and increase of interest on the said loans. The official permission to the banks to issue notes was for public convenience and the facilitating of trade; but owing to the unscrupulous conduct of many of the banks, the effect has been just the reverse, entailing confusion and ruin to the people and merchants alike.

Strict regulations should be adopted in the future in permitting a bank to issue notes. All issue of notes must be secured by a full reserve, equal in amount to the notes issued, or by the joint guaranty of all other banks, so that in the event of a banking firm repudiating or dishonoring its notes, all the other banks will be held responsible for full payment. By making the banks mutually responsible for each other, only trustworthy and reputable parties will be permitted by the Bankers' Guild to establish a bank, and fraudulent or excessive issue of notes will then be impossible.

While the officials and merchants were mutually placing the onus of the blame on each other's shoulders, the situation was getting worse and worse. Failures of the most reliable firms were reported daily, and it was felt on all sides that something must be done to avert a general disaster.

With this object in view, the customs taotai proposed to the foreign banks in Tientsin to relieve the native banks by the issue of 3,000,000 taels in notes bearing the taotai's chop and receivable by the foreign banks. This proposal was not, however, accepted by the foreign banks, as the guaranties offered were not considered sufficient.

After the failure of these negotiations, this most pressing matter was left in abeyance pending the return of the viceroy, which took place two weeks ago. Viceroy Yuan, with his characteristic energy, invited some of the chief merchants of Tientsin to his yamên and held repeated conferences with them, determining to get the most expert advice on this difficult financial question. Special assistance was rendered by Messrs. Woo Jim Pah and Wong Ming Wah, the well-known compradores of the Hongkong and Shanghai Bank and the

Russo-Chinese Bank. These two gentlemen have been duly appointed and empowered by the viceroy to formulate some practicable plan by which the present financial chaos may be remedied. Messrs. Woo and Wong have exhibited great public spirit and energy in the discharge of the delicate and responsible duty conferred upon them by the viceroy, and as the result of their joint deliberation the following scheme was submitted on May 2, 1903, to all the foreign bankers in Tientsin:

That owing to the scarcity of silver, the viceroy should allow the native bankers to circulate their bank orders as usual.

That the reliability of the native banks be tested by the authorities of the viceroy's Official Bank and be registered by them.

That arrangements be concluded by which the foreign bankers should credit native-bank orders, upon the production by the native banks of securities satisfactory to the compradores of foreign banks.

That the Official Bank put its chop on all native-bank orders that are intended to pass foreign banks.

That the Official Bank and the compradores of foreign banks be equally responsible for any irregularity of these bank orders.

That the viceroy stand as security to the extent of 300,000 taels* for each of the five leading native bankers.

That documents of title to property or goods of the native bankers, if necessary, be lodged in the hands of foreign bankers under certain conditions.

That the viceroy be requested to communicate the above conditions to the authorities of the foreign bankers.

The representatives of the foreign banks to whom these proposals were submitted gave their approval and support, with the exception of one who expressed his conviction that under the present financial conditions prevailing in Tientsin, operations could be conducted with safety only on a cash basis. The other foreign banks are ready to adopt this practicable scheme, which has been formulated by men of approved ability, experience, and financial acumen. The banks are prepared to credit approved native orders which are satisfactory to their own compradores and have the chop of the viceroy's Official Bank.

The circulation of these native-bank orders, which will be under the triple guaranty of the native bank, the viceroy's Official Bank, and the compradores of the foreign banks, will mean the revival of trade not only of Tientsin, but of North China, the return of public confidence, and the commercial prosperity of the port, all of which have been seriously endangered through the prolonged financial crisis which threatened to engulf everyone in ruin; but it is now felt that the right remedy has been applied and an era of commercial prosperity and expansion will dawn upon the cruelly tried emporium of North China.

JAMES W. RAGSDALE,
Consul-General.

TIENTSIN, *May 7, 1903.*

* The value of the Tientsin tael was given by the United States Mint, April 1, 1903, at 55.2 cents.

THE OSAKA EXHIBITION.

Consul S. S. Lyon transmits from Kobé, May 14, 1903, newspaper clippings descriptive of the Osaka exhibition, from which the following extracts are taken:

The National Industrial Exhibition at Osaka has now been opened to the public for two and one-half months, and the attendance of the public and other indications prove that it will be the most successful of the five industrial exhibitions that have been held in Japan.

Japan has not yet had an international exhibition in the full sense of the term, but this year foreign countries have been granted a limited space to exhibit samples of their produce. It is curious that the two countries which have taken advantage of this to the greatest extent are both colonies, to wit, Canada and Netherlands India. The State of Oregon has a good exhibit, and Australia is included in the foreign section, though we believe the Government of that country would have largely participated had it been possible to allot more space.

NETHERLANDS INDIAN EXHIBIT.

In the Netherlands Indian section is an excellently made model of a Javanese lighter with sails set, built of native teak, about 5 feet long and $1\frac{1}{2}$ feet deep. There is also a handsome and elaborately carved five-fold screen of sono wood. The wood is of the color and appearance of unstained oak, and the native carving resembles very closely the best carved-oak panelwork at home.

The greatest amount of space is probably devoted to native works of art. There are wooden idols; brass articles worked in artistic designs, such as decanters, bowls of all sizes, spittoons, vases, kettles, betel boxes, and strange utensils for which we can not find a name; a variety of bangles, bracelets, earrings, buckles, and hairpins; cigar cases, cigar holders, ash trays, penholders, paper knives, tea-pots, tea canisters, bread baskets, bottle stands, slippers, card boxes, glove boxes, and portières. The cigar cases and other boxes are made of gutta-percha, tin, and other material, and are shown with the object of giving strangers to the colonies some idea of the extent of the native skill in handicrafts. In what might be termed the drapery department are exhibited sarongs (a sort of loose indoor gown for women), many sorts of sashes of silk and other stuffs, shirts, skirts, head cloths, and antimacassars.

The government's exhibits consist of a series of maps made by the topographical office, showing the military, economical, and geographical position and advantages of the colonies. The government's railways, coal and tin mines, and salt works are represented by their products, etc. In agriculture and forestry, especially, the government sends many valuable samples, of which the following is a list: Caoutchouc, gutta-percha, cinchona bark of many varieties from the government's cinchona estates, and cinchona-bark cuttings. The system of the cultivation of cocoa is explained in a variety of exhibits of cocoa trees, cocoa pods, and different quality pickings.

We ought not to close this article without making mention of the catalogue of the Netherlands Indian exhibits that has been prepared with such trouble and expense by Mr. H. Rud. du Mosch, of Batavia, vice-president of the exhibition commission. The work has 200 large pages and consists of English and Japanese text. It will prove a useful work of reference on the Netherlands India for years to come.

AUSTRIAN EXHIBIT.

The largest independent section representative of a foreign country at the Osaka exhibition is occupied by Austria. A subsidy was granted by the Austrian Government, in order that the exhibits might be as representative as possible of the industries of the country.

A large hall is devoted to machinery. The exhibit which causes perhaps most interest is the ice compressor, or refrigerating machine, with its pipes covered with hoar frost leading to the cold chamber. Austrian champagnes and other wines have their temporary home in the cold chamber. Just opposite is an electric wire-making and cord-making machine, the great advantage of which is that it may be stopped instantaneously even though the machine is working at full speed. A large printing machine, specially prepared for the execution of half-tone work and illustrations in colors, is near by. One of its features is an automatic register by which it may be seen at a glance how many copies have been printed. The rollers of this machine are very numerous, with a view to affording full distribution of the ink, and it should be well adapted to its purpose of printing illustrations. A Vienna firm shows bookbinding, cardboard-cutting, perforating, gold-printing, and embossing machines, etc. Perhaps the most complete model in the exhibition is a sawmill. Through the tiny windows the visitor may see the miniature machines at work—the steam engines in one room, sawing and planing machines in others, the repairing room, drilling machines, and below, in the basement, the shafting. The whole of the little building is lighted by the tiniest electric arc lamps. No detail has been omitted.

There is a big display of well-finished Austrian steel-iron steam and water pipes and sugar-loafing molds, for which it is claimed that they are cheaper than cast iron, while lasting quite as long. Fire bricks, made of cork and composition, and machines for corking bottles and fitting capsules thereto are shown.

A fire engine similar to that which gained a gold medal at Paris in 1900, with capacity for pumping to a height of 200 feet and capable of getting up full steam within seven minutes, is exhibited. There is an arrangement on the engine by which water may be pumped by hand while steam is being got up, so that not a moment need be lost, and three lengths of hose may be used at the same time. A hand pump is also on view, a miniature one which may be carried on the shoulders. This is exceptionally useful for fires occurring in places where the fire engine can not get to. All the parts are made of a very light mixture of metal called "magnolium," and there should be a good demand for a pump of this kind in Japan. There is a novel display of filters. The simplest are earthenware bottles constructed almost up to the neck of a porous material. All that is necessary is to dip the bottle into a larger vessel, or a pond or river, and the water will percolate through and fill the bottle, the material being so made that the water will be retained in the bottle, and when poured out will be fit to drink. Pumps suitable for army use are similarly constructed, by means of which water may be pumped from a river and filtered at the same time.

In the machinery section of the Foreign Samples Building, Austria has some powerful wood-working, planing, and sawing machines, the operations of which attract crowds of interested spectators. A planing machine, the wheel of which can be made to turn 3,000 times a minute, can be used for boring purposes as well, and is said to be capable of doing half a day's work by hand in five minutes. A powerful forge machine is on view, which will hammer hard metal as thin as paper in an incredibly short space of time.

In the industrial part of the foreign-samples section are to be seen Austrian

carriages and all kinds of smaller articles; trays, etc., of metal ware; tins of tempering powder; samples of cigarette paper and tins of Anglo-Austrian condensed milk. Specimens of Moravian malt and hops are on view, and these, it may be added, are used in the brewing of some of the most famous of the Japanese beers. There are varieties of paper, enameled ware, glassware, electric lamps, cigars, furniture, and works of art in terra cotta.

OTHER EXHIBITS.

Among the foreign firms represented at the Osaka exhibition is the firm of Messrs. Bruhl Frères, of Kobé and Yokohama. This firm shows machinery of various types, motor-propelled vehicles, bicycles, typewriters, etc., for all of which Messrs. Bruhl Frères are the agents in Japan. The principal exhibit is a set of hot-air engines, shown in operation in a special building just outside the exhibition compound, close to the main entrance. In this building there are five Rider & Ericsson hot-air engines in motion, and they are used for pumping water from the fountain opposite the main entrance to the exhibition and delivering it some 500 feet distant to a waterfall, which has an elevation of about 15 feet and falls into an artificial lake. In the same building the firm shows the well-known Edson diaphragm pumps, the particular interest of which lies in the fact that one man can pump 6,000 gallons of water an hour, raising it from a ditch about 10 feet deep. These pumps in operation prove of great interest to visitors.

The other exhibits are in the Foreign Samples Building. Here there is on exhibition the latest model of the Oldsmobile type of motor car. There are also 1903 models of the Thomas motor cycles, and an Orient touring motor cycle, made by the Waltham Manufacturing Company. In this exhibit there are three of the latest models of the Leroy cycles, finished in nickel plate.

In the machinery section of the building, Messrs. Bruhl Frères exhibit the Springfield-Gould direct-coupled pumping outfit. This apparatus may be described as a gasoline engine directly coupled with a triplex pump, and when in motion the machine takes water from a tank at the rate of 50 gallons a minute. There is also in operation a powerful motor engine named the Wolverine Marine, of sufficient power for driving a launch 20 feet in length. A most interesting exhibit is the Edson pile-sinking apparatus, by which piles are driven into holes excavated by the great pressure of a stream of water ejected from the apparatus.

The firm calls particular attention to the fact that the articles exhibited are not dependent upon any outside power for driving. They are either to be operated by hand or by some generating power which accompanies the machines—an arrangement which allows the use of the machinery where steam or electric power may not be obtained.

QUININE AUCTION IN BATAVIA.

The fourth sale of quinine by public tenders for the year 1903 was held at this city on the 29th ultimo, and the following were the transactions of the day:

There were put up for sale 4,762.8 kilograms (10,500 pounds) of sulphate of quinine, Editio II, packed in lots of 11.34 kilograms (25 pounds), of which only 45.36 kilograms (100 pounds)—four lots—were disposed of at 20 florins (\$8.04) per kilogram (2.2 pounds).

The other bids being below the price limit, the remaining quinine was withdrawn until the next sale.

The price realized—20 florins (\$8.04)—is equal to the unit price of 0.0775 florin (3.12 cents) for the bark at the Amsterdam market.

The total shipments of quinine for the month of April are reported to have been 1,074,973 kilograms (2,369,885.4 pounds).

The next sale will be held on the 27th instant.

B. S. RAIRDEN,

BATAVIA, *May 5, 1903.*

Consul.

NOTES.

The Question of Dutiable Values in the United States.—Consul-General F. H. Mason writes from Berlin, June 16, 1903:

German exporters of manufactured goods are preparing to make a united and vigorous protest against the methods of determining dutiable values which are practiced by the appraisers' department of the United States Treasury. A circular has been issued to exporters throughout the Empire in which they are each invited to send to the central association—"Der Bund der Industriellen"—a statement of their grievances. The text of the circular is herewith translated, as follows:

1. Have you had difficulties in making imports into the United States by reason of the market values as fixed by the appraisers?
2. In the determination of dutiable values, was the German or the American market price of the goods taken as the basis or standard?
3. Were the dutiable values of your merchandise decided to be higher than you had declared them in your invoices?
4. Have you made appeal to the Board of General Appraisers, the collector of customs, or the Secretary of the Treasury against such advances in duty value?
5. Was the proceeding (of the appraising officers) a legal or an arbitrary one?
6. Have you been wronged or injured by the arbitrary decision of dutiable values on the part of American officials, and, if so, to what extent?

It is intended that the replies to these interrogatories shall be classified, formulated, and used as proofs to support a protest against the present system of appraisal.

German Chemical Factory.—Consul-General Richard Guenther writes from Frankfort, May 18, 1903:

The largest factory of chemicals in the world is said to be the aniline and soda establishment of Baden, in Ludwigshafen-on-the-Rhine. The works employ 148 scientific chemists, 75 technical engineers, 305 clerks, and more than 6,000 workingmen. There are 421 buildings for factory purposes and 548 dwellings for laborers and 91 for officials. One hundred and two boilers furnish steam for 253 engines with 12,160 horsepower. Gas is extensively used as fuel. Five large steam hoists on the banks of the river are used for loading and unloading. The works own a vessel, with a capacity of 600 metric tons, for the transportation of sulphuric acid. A network of railways, having a total length of 27 miles, connects with the State railroad system. Three hundred and eighty-seven cars are owned by the factory.

Alkali Discovery in Germany.—Consul B. H. Warner writes from Leipzig, under date of May 28, 1903, that new alkali deposits have been found in the province of Saxony, Germany. Test holes were bored by the Grossesterhausen sugar factory and by the Prussian Government, with the understanding that the first to strike alkali deposits was to have the option on a tract of 568 acres. The results have shown that a new field of considerable commercial importance will soon be opened.

Regulations for Electric Cars and Automobiles in Leipzig.—Consul B. H. Warner sends the following from Leipzig, May 26, 1903:

Municipal ordinances prescribe that electric street cars shall not run at a higher rate of speed than 9 miles an hour in the business sections; with trailers, 7.2 miles; in residential sections, 10.8 miles an hour, or 9 miles with trailers; and in the suburbs, 15 miles, or 12 miles with trailers. The penalty for exceeding the speed limit is a fine up to \$15 or imprisonment for fourteen days, or both. In case of accident, a higher penalty may be inflicted.

The city council, at a recent meeting, passed an ordinance prohibiting the use of automobiles in most of the streets of the inner city, and in other parts allowing them to be driven only along those streets which are traversed by electric cars.

Powerful Steam Dynamo in Germany.—Consul-General Richard Guenther, of Frankfort, under date of May 29, 1903, says:

The rapid development of electric central stations in Germany has resulted in the construction of powerful dynamos. The Rhenish-Westphalian Electricity Works at Essen has ordered from the Brown-Bovert Company at Mannheim a steam turbine to furnish power for a dynamo of 5,000 volts and one for 1,600 volts. These two electrical machines will require about 10,000 horsepower. The whole apparatus occupies a space less than 9 feet in height and width and about 60 feet in length. The 10,000-horsepower turbine has a length of only about 21 feet.

Power Plant in Saxony.—Consul B. H. Warner, of Leipzig, under date of May 26, 1903, says:

The Berliner Elektrizitätsgesellschaft proposes to erect a large central electric-power plant at Crimmitzschau, Saxony, to furnish power to electric-lighting companies, street-railway companies, and factories. Crimmitzschau and Werdau are but 6 miles apart, and the country between them is almost covered with manufacturing enterprises.

New Locomotives for Prussian Railways.—Consul B. H. Warner, of Leipzig, informs the Department, May 20, 1903, that the Prussian Government has just placed an order for 317 locomotives, of different kinds, with the firms that have heretofore built engines for the State railways. They are to be delivered by April 1, 1904. In a later report, the consul adds that 476 passenger cars, 62 baggage cars, and 3,920 freight cars have also been ordered. It is said that these cars, which have about three-tenths the carrying capacity of those used in the United States, represent the regular needs of the Prussian railroads for 1904. The orders are given this year on account of the lack of work in the car shops.

New Freight Railway in Germany.—Consul B. H. Warner, of Leipzig, June 4, 1903, writes that the Prussian Government has granted a franchise to a joint-stock company to build a freight railroad about 3 miles long from Mühlberg, on the Elbe, to Burxdorf, on the main line of the Berlin-Riesa-Dresden Railway. The estimated cost of the roadbed, exclusive of the ground—which has been donated by the city of Mühlberg—is 625,000 marks (\$148,751). It is claimed that the new line will considerably increase the importance of Mühlberg as a river port, by diverting a portion of the traffic between Hamburg and points in central Germany in the vicinity of the Elbe River

Railroad in the Harz Mountains, Germany.—Under date of May 27, 1903, Consul B. H. Warner, of Leipzig, reports that the Prussian Government will build a railroad across the Harz Mountains, from Eisleben to Rottleberode via Wippra and Stolberg, a distance of about 50 kilometers (30 miles). Work will soon be begun.

German Railway Supplies for Italy.—Consul B. H. Warner reports from Leipzig, May 23, 1903, that the Mediterranean Railroad Company has just awarded contracts for building 8 locomotives, with tenders, at 65,049 lire (\$12,554.46) each, to a Cassel firm; 12 four-wheel baggage cars, at 9,200 lire (\$1,775.60) each, to a Desau firm; 50 freight cars, without brakes, at 3,250 lire (\$627.25) each, to a Gotha factory; and 15 four-wheel passenger cars (second class), at 18,465 lire (\$3,563.75) each, to a Brussels house.

Losses of German Ocean Vessels.—Under date of June 20, 1903, Consul-General R. Guenther, of Frankfort, reports that, according to German imperial statistics, the losses of German registered

ocean vessels during the year 1900 were 85, of 57,078 tons gross and 44,720 tons net. Of these, 32 stranded, 2 capsized, 14 sank, 11 were lost in consequence of collisions, 9 as the result of severe damages, and 17 have never been heard of. Of the 1,073 persons aboard the foregoing—982 of which were members of crews and 91 passengers—3 passengers and 286 members of the crews lost their lives, or a total of 289 fatalities.

New Iron Mill in Germany.—Consul B. H. Warner writes from Leipzig, May 20, 1903, that the Haspe Iron and Steel Company (located at Haspe, Westphalia) has completed a plant for the manufacture of hoop iron. The company is capitalized at 4,265,000 marks (\$1,015,070). It was organized in 1894, and since that time has paid its shareholders 74½ per cent in dividends—only 2 per cent, however, in the last two years.

Trusts in Germany.—Consul-General J. H. Worman, of Munich, May 9, 1903, reports that the executive committee of the German Handelstag—i. e., the Imperial Board of Trade (Ausschuss des Deutschen Handelstages)—has, upon the suggestion of the Chamber of Commerce at Stuttgart, requested all chambers of commerce in the Empire to pay particular attention to trusts (kartelle) and syndicates, noting with special care and minuteness everything that speaks for or against the organization of trusts, and to report to the Handelstag their gathered experience, as well as the opinions required from these observations. Upon the basis of these reports the Handelstag will deliberate upon the proper course of action to be pursued in the interest of German industry and commerce.

Condition of German Jute Industry.—Under date of May 29, 1903, Consul T. J. Albert, of Brunswick, reports:

The Union of the German Jute Industry was organized to establish an equilibrium between the demand and the production of the jute factories. For this purpose, the union has in the last two years put out of service 22,830 spindles and 1,148 looms. Many members of the union have also voluntarily put out of service 4,110 spindles and 247 looms, so that the reduction amounts to 26,940 spindles and 1,395 looms, or more than 20 per cent of the entire number in the union. In spite of this, there exists to-day a large overproduction of jute in Germany.

City Employees in Leipzig.—Consul B. H. Warner writes from Leipzig, June 3, 1903:

The Leipzig city council has passed an ordinance compelling those employed in the various departments of the city government to take up their residence within the city limits on or before the 1st of January, 1905. As the waterworks, lighting plants, storage warehouses, markets, pawn shops, hospitals, etc., in addition to those departments under city control in the United States, are municipal institutions, a large number of people will be affected by this ordinance. It is said that this action was taken in order to foster Leipzig's growth, to increase the city's income, and to concentrate the conservative vote.

German Meat-Inspection Fees.—Consul J. E. Kehl transmits from Stettin, May 29, 1903, translation of a newspaper article in regard to the burdensome results of the new meat-inspection act, which reads, in part:

Importers have informed us that at certain places the inspection and examination lasts three or four days. At one of the Berlin custom-houses, there recently arrived from Budapest 42 barrels of salted guts, for which an inspection fee of 178 marks (\$42.36) was paid. The fees practically prohibit importation, and the people who eat sausage are subjected to a new indirect tax.

Selling Eggs by Weight in Germany.—Consul B. H. Warner writes from Leipzig, May 28, 1903:

The provision officials of Prussia have been petitioned to have eggs sold, in the future, by weight instead of by number. The object is to protect German poultry breeders against those of foreign countries, German eggs weighing, on an average, from 38.58 to 51.44 pwts., while those imported weigh from 25.72 to 32.15 pwts.

German Sugar in England.—Consul B. H. Warner reports from Leipzig, May 27, 1903:

There has been a decided decrease during the last few months in the quantity of beet sugar exported from Germany to England, the loss amounting for the first quarter of 1903 to almost 63,000 long tons in raw sugar alone. England has, it is true, a considerable stock from 1902; but another reason for the decrease is that larger quantities of cane sugar have been imported from the English colonies. Cane sugar is also being bought from Cuba, a thing which has not been done for twenty-five years.

European Sugar-Beet Cultivation.—Consul Walter Schumann writes from Mainz, May 13, 1903, as follows:

The following table, regarding European sugar-beet cultivation for the season of 1903 as compared with that of 1902, has been compiled and published by the International Sugar Statistical Association as the result of a general inquiry made between the dates of April 29 and May 9:

Country.	Facto-ries.	Area under sugar-beet cultivation.				Increase.	De-crease.
		1903.		1902.			
	<i>Number.</i>	<i>Hectares.</i>	<i>Acres.</i>	<i>Hectares.</i>	<i>Acres.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Germany	385	412,093	1,018,282	429,341	1,069,902	.....	4
Austria-Hungary	215	306,610	757,633	304,000	751,164	0.8	.....
France.....	299	224,200	553,998	238,100	598,345	.....	5.8
Russia	277	564,873	1,395,801	597,372	1,476,106	.....	5.5
Belgium	99	57,500	142,083	52,300	129,233	9.9	.....
Holland	29	40,343	99,687	31,035	76,687	3	.....
Sweden	17	28,732	70,997	24,118	59,596	19.1	.....
Denmark	7	14,700	36,324	14,700	36,324	.....	.....

German Electrical Goods for Russia.—Consul B. H. Warner sends the following from Leipzig, May 28, 1903:

German electrical interests are petitioning the Government officials to arrange for making a new commercial treaty with Russia for lower duties upon German electrical supplies. At the present time about 20,000,000 marks' (\$4,760,000) worth of electrical goods are exported to Russia from Germany annually, and the amount is increasing from year to year.

Coal Mining in Poland in 1902.—Consul-General W. R. Holloway sends from St. Petersburg, May 15, 1903, figures published by the Messenger of Finance concerning mining in Poland, as below:

During the last year 36 mines furnished coal, and 305 steam engines were employed. The total production amounted in 1901 to 252,566,787 poods (410,678 tons) and in 1902 to 258,169,482 poods (419,787 tons). Besides pit coal, brown coal was mined in Poland in the district of Zavertze in 4 mines during 1903. The total quantity of brown coal produced in 1901 was 1,040.6 tons; in 1902, 895.8 tons.

American Typewriting and Salt-Mining Machines Wanted.—Under date of June 15, 1903, Consul C. R. Slocum, of Warsaw, reports that inquiries have been made at his office for typewriting

machines of the description known as "visible writing" and for salt-mining machinery for evaporating processes. Two of the best-known makes of typewriters—one of them the "visible" class—are represented at Warsaw by agents, but the demand seems to be for those which retail at a lower figure. It is particularly desired that prices be quoted c. i. f. Danzig, Germany, and that net and gross weights be carefully stated.

Wheat Prospects in Russia.—Consul-General W. R. Holloway writes from St. Petersburg, May 15, 1903, that, according to data compiled by the Ministry of Agriculture, the outlook for wheat in European Russia is satisfactory. Winter wheat is fair, especially in the southern provinces. The spring has been unusually mild.

Olive Oil in Italy.—Consul-General H. de Castro sends from Rome, May 19, 1903, a letter from the president of the United Chambers of Commerce of Italy which says, in part:

I take the liberty of calling attention to a report from a consul in Spain which appeared in No. 1589 of the ADVANCE SHEETS OF CONSULAR REPORTS on March 9 last. It is asserted therein that Italian oil exporters, in the years of short crops, import oil from Spain, mix it with American oil, and export said mixture to the United States as an Italian product. Considering that foreign oil is charged in Italy an import duty of 6 francs per 100 kilograms (\$1.16 per 220 pounds), and that no drawback is allowed for reexportation, it is difficult to perceive the advantage Italian commerce could derive from such a process. As far as this year's crop is concerned, I must observe that, although it is inferior to the average of the last four years, it has exceeded the Spanish crop and it would thus seem more rational for Spanish exporters to come to Italy for their requirements.

It is a fact that Italy buys at irregular times, when her crops run short, some olive oil from Spain—this, however, in small proportion compared with her own exportation. As the oil so imported is subjected to duty and is generally lower in price than the Italian product, said imported oil must necessarily be used for home consumption. It is natural that Italian producers should export the finer product in order to enable them to compete with the producers of other countries.

The consul-general adds that he has personally studied the oil industry in Italy and has never found that the product was adulterated for exportation purposes.

Sicilian Lemon Crop.—Consul Alexander Heingartner reports from Catania, May 16, 1903:

The summer lemon crop in this consular district promises well. The fruit is of very good quality, although, owing to the dry winter,

dirty in appearance. The crop is about the same as last year; the amount for export is estimated at 140,000 boxes (300 in a box); prices, 10 to 12 lire (\$1.93 to \$2.23), according to quality. Freight rates to New York, per box, are 1s. 3d. (30.4 cents).

Spanish Request for Brick-Making Machinery.—Under date of May 30, 1903, Consul-General Julius G. Lay, of Barcelona, informs the Department that he is in receipt of a letter from Mr. Agustin Palomar de la Torre, of Saragossa, which states that he has been appointed to establish the pottery industry in that city, and, having heard of the excellent quality of the machinery manufactured by American firms, he desires to learn the names and addresses of American manufacturers of machinery for making bricks, tiles, and other ceramics. The consul-general suggests that the inquirer be addressed direct, in Spanish or French, sending catalogues and quoting prices, if possible, c. i. f. Barcelona. Freight rates can be ascertained from Ceballos & Co., 80 Wall street, New York, agents of the Spanish Transatlantic Company, the steamers of which leave New York for Barcelona about the first of every month.

Copper Production in Hungary.—Consul F. D. Chester sends the following from Budapest, May 15, 1903:

There were mined in Hungary, in 1901, 161,547.8 metric tons* of copper, the value of which was 236,565.31 crowns (say \$47,313.06). The quantity produced in the preceding calendar year was some 20 tons greater. Formerly, 80 per cent of the copper was mined by the Government, but in the past year only 50 per cent was so mined. There are at present 16 copper-mining concerns in Hungary, of which two State and three private undertakings supplied the greater part of the metal.

Commercial Policy of Hungary.—Consul F. D. Chester reports from Budapest, May 23, 1903:

It is reported that Hungary intends to impose countervailing duties on American manufactured goods, or at least to demand the termination of the commercial treaty of 1829 and the substitution of a reciprocal in place of a most-favored-nation convention, similar to that concluded by the United States with France.

The export of sugar from Hungary to the United States ceased last year. In concluding a reciprocity treaty with the United States, Hungary will lay more stress on her export of glassware, majolica, hand embroideries, bent-wood furniture, rubber toys, tobaccoists'

* 1 metric ton=2,204.6 pounds.

ware, etc., than on the articles paying specific duties, viz, mineral water, wine and brandy, beans, tobacco, and wool. It is to be feared that the United States will have difficulty in securing tariff rates as low as those now prevailing under the favored-nation clause, or as low as those granted to the manufactures of Germany and Switzerland.

Combine of Shipbuilders on the Tyne.—Consul H. W. Metcalf reports from Newcastle-on-Tyne, May 21, 1903, that an amalgamation of shipbuilding firms on the River Tyne, with the control of other kindred establishments, is proposed. The firms interested are Messrs. Swan & Hunter, the builders of several large floating pontoon docks and also of the Cunard liners *Ivernia*, *Ultonia*, and *Carpathia*, and Messrs. Wigham, Richardson & Co., also builders of fast passenger steamers, principally for continental account.

Catalogues of Coffee and Lime Machines for Johannesburg.—Consular Agent W. D. Gordon writes from Johannesburg, June 1, 1903, that if manufacturers will send him catalogues, etc., of machinery for the preparation of coffee and lime for the market he will place them in the hands of interested parties.

Australian Customs Regulations.—Consul-General J. P. Bray writes from Melbourne, May 17, 1903, that the following notice was published in the Commonwealth of Australia Gazette of May 16:

Whereas by the customs act, 1901, it is enacted that all goods the importation of which may be prohibited by proclamation are prohibited imports; and whereas it is desirable to prohibit the importation into the Commonwealth of hop aromas, hop oil, hop extracts, hop flavors, and hop bouquets, whether simple or compounded in any manner with other material used in any brewing process or for addition to beer: Now, therefore, I, the governor-general, acting with the advice of the federal executive council, in exercise of the powers conferred upon me by the customs act, 1901, do hereby prohibit the importation into the Commonwealth of hop aromas, hop oil, hop extracts, hop flavors, and hop bouquets, whether simple or compounded in any manner with other material used in any brewing process or for addition to beer.

The following order, adds Mr. Bray, has been issued by the comptroller of customs:

In view of the number of cases which have occurred in which advertising matter is discovered in packages, though no mention of it is made in the invoice, the acting minister directs that action be taken in regard to all advertising matter not shown in invoices and the goods forfeited by the department. Importers should be careful to see that all advertising matter is shown in the invoice.

The forfeiture applies to the advertising matter in the packet only.

Trade Request from Melbourne.—Under date of June 6, 1903, the Bureau of Foreign Commerce has received a request for samples of native American products suitable for the manufacture of varnish: Ten pounds' (\$48.66) worth of waxes of all kinds, gums, wax berries, resins, natural dye woods and berries, and the like. No manufactured article will be accepted. These goods are to be sent to Melbourne, Australia. Directions for their delivery at New York may be obtained by addressing George Rogers, Son & Co., 22 Gt. St. Helens, London, England.

Coal Prices in New South Wales.—Consul F. W. Goding reports from Newcastle, May 2, 1903, that a majority of the coal-mining companies in the district have agreed that from May 15 the price of coal shall be 10s. (\$2.43) per ton (a reduction of 1s., or 24 cents), and, according to the provision of the sliding scale, the hewing rate is to be reduced from 4s. (96 cents) to 3s. 10d. (92 cents) per ton. It is significant, he adds, that the four collieries having the greatest output refuse to make the reduction.

Preparing Peat for Fuel in Ontario.—Consul M. J. Burke, of St. Thomas, Ontario, under date of June 22, 1903, transmits the following paragraph from the Toronto Globe of June 13, 1903:

The great importance of the fuel question has led the bureau of mines to take a special interest in peat, lignite, and other kinds of fuel found in Ontario. A bulletin has just been issued describing the most modern and improved methods of preparing peat for fuel, and also how to burn it to advantage.

Tax on Dynamite and Powder in Mexico.—Under date of June 8, 1903, Consul W. W. Canada sends from Veracruz copy (printed) of a decree relating to the manufacture of smokeless powder and dynamite in Mexico,* as follows:

ARTICLE 1. The Executive is empowered, in accordance with the contract entered into by the Department of Fomento with the Compañía Nacional de Dinamita y Explosivos, S. A., to establish an internal consumption tax on all kinds of dynamite and industrial explosives imported from abroad or manufactured in the Republic, said tax to be payable when and as the Executive may determine.

ART. 2. The basis for the creation of said interior consumption tax will be as follows:

I. Dynamite and industrial explosives, entered through the custom-houses of the Republic, will pay \$210 (\$94.50 gold) per ton of 1,000 kilograms (2,204 pounds) gross weight.

*ADVANCE SHEETS No. 1242 (January 18, 1902).

II. Exemption from said tax may be allowed in the case of common gunpowder, black gunpowder for mines, and gunpowder for fireworks or for hunting purposes in the composition of which the only ingredients used are sulphur, carbon, and the nitrates of soda and potash, and not nitroglycerin, chlorate of potash, or other, chemical explosive.

III. The *Compañía Nacional Mexicana de Dinamita y Explosivos, S. A.*, will pay the internal consumption tax on the products which it may manufacture, in the form and subject to the conditions provided by the contract which it made with the Department of Fomento on August 12, 1901.

Mexican Tariff on Ferromanganese.—Consul W. W. Canada reports from Veracruz, June 8, 1903:

The Mexican Government has reduced the import duty on ferromanganese with the view of encouraging the manufacture of steel by modern methods in the Republic. Ferromanganese containing 25 per cent or more of manganese was formerly subject to a customs duty of \$5 per 100 kilograms (5 cents silver, or about 2.25 cents gold, per 2.2 pounds) gross weight; the new rate of duty has been fixed at \$1.50 per 100 kilograms (1.5 cents silver, or 0.67 cent gold, per 2.2 pounds) gross weight.

Mexican Commercial Museums Abroad.—Consul W. W. Canada, of Veracruz, under date of June 8, 1903, says:

The Department of Public Improvement of the Mexican Government has under consideration the advisability of establishing commercial museums in connection with the more important consulates in foreign countries. Through the efforts of the Mexican consul at Liverpool, England, an exposition of the products of Mexico is about to be inaugurated at that place. The governors of the several States have been requested to forward samples of the principal productions of their respective sections. Precious woods, fibers, cereals, vanilla beans, coffee, sugar, etc., are to be sent at once to the consulate at Liverpool.

The Mexican exposition at Milan, Italy, is in complete working order. Its large and commodious rooms are visited daily by merchants and manufacturers, who thus come in direct communication with the Mexican producers.

Government Purchase of Railroad in Mexico.—Consul-General A. D. Barlow reports from Mexico City, June 6, 1903, that the Mexican Government has purchased a controlling interest in the National Railroad—one of the two lines from that city to the frontier.

Failure of Corn Crop in Yucatan.—Consul W. W. Canada, of Veracruz, under date of June 8, 1903, says that recent reports from Yucatan indicate a failure of the corn crop of that section. A certain disease is destroying the corn in the fields, and all the efforts of the agriculturists have been powerless to stamp it out. A shortage of supply, the consul notes, should be expected from that region for the coming season, and it would be well for our exporters to keep a close watch on that market.

Quay Duties at Pointe a Pitre, Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, under date of June 10, 1903, says:

A decision of the Court of Cassation of France, recently made public, declares the quay duties collected at Pointe a Pitre to be illegal. These duties were imposed about forty years ago by a local regulation. In 1900 a notice in the Journal Officiel fixed the following rates:

Parcels, whether grouped or not grouped.

Description.	Tax per parcel.	
	Francs.	Cents.
1 to 100 kilograms (2.2 to 220.4 pounds).....	0.15	2.89
101 to 200 kilograms (222.6 to 440.9 pounds).....	.25	4.82
201 to 300 kilograms (443.1 to 661.3 pounds).....	.35	6.75
301 to 400 kilograms (663.5 to 881.8 pounds).....	.45	8.68
401 to 500 kilograms (884 to 1,102.3 pounds).....	.55	10.61
501 to 600 kilograms (1,104.5 to 1,322.7 pounds).....	.65	12.54
601 to 1,000 kilograms (1,324.9 to 2,204.6 pounds).....	.75	14.47
Over 1,000 kilograms (2,204.6 pounds) for each 100 kilograms (220.4 pounds).....	.10	1.93
Horses .....per head...	1.00	19.3
Asses .....	.50	9.65

It has now been decided that the duties were illegal, and an attempt will be made to establish new and legal rates, which, however, will be much more moderate.

Wireless Telegraphy in Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, under date of June 10, 1903, says:

The wireless-telegraph system in operation between this island and Martinique* has been thrown open for the use of the public. Messages are transmitted from this city and other points to the station at Gosier by telephone. The tariff of rates is practically that of the French Cable Company, the lines of which have been broken for some sixteen months. The service is satisfactory, an average of 60 messages each way being transmitted daily. There are, of course, occasional interruptions, due to weather conditions, but these are not frequent.

*See ADVANCE SHEETS No. 1580 (February 26, 1903).

Concession to Manufacture Soap and Candles in Honduras.—

Consul William E. Alger, of Puerto Cortes, informs the Department, June 10, 1903, that the Congress of Honduras has granted a concession to an American citizen to manufacture soap and candles, with the privilege of importing all raw material duty free for a period of ten years.

Consular Invoices in Salvador.—Consul-General John Jenkins sends from San Salvador, May 28, 1903, translation of a decree which provides that the law of consular invoices of May 30, 1900, shall be repealed and the law of April 3, 1900,* reenacted.

German Sailcloth in South America.—Consul B. H. Warner, of Leipzig, May 26, 1903, says:

German sail and awning cloth manufacturers of this city are making strong efforts to secure South American trade. A prominent sail manufacturer has just informed me that he has succeeded in establishing regular traffic with South American countries, and that he hopes before long to do the same in Cuba.

Trade Notes from Colombia.—The following has been received from Consular Agent H. G. Granger, of Quibdo:

American advertising matter is received locally in abundance and compares favorably with European matter of the same class, use being made of Spanish or of English with Spanish translations. Consequently, there is a marked increase of importations from the United States, a number of merchants having transferred their general dealings there from Europe. The increase is also due to the production by our manufacturers of lines of cheap goods, that still have more durability than similar European goods that have held the market hitherto. Business would be further increased if there were more prompt dispatch of orders and more care in packing for regions where there is so much rehandling, with such poor facilities. It is also advisable for catalogues to state prices. In a region where the very quickest of mail service entails a couple of months for an answer to a letter, a knowledge of prices often effects a sale.

Shipments of Rubber from Para.—Under date of June 6, 1903, Consul K. K. Kenneday says:

The shipments of rubber from the Amazon Valley during the month of May just passed amounted to 2,070 tons, as against 2,083 tons for the same month in 1902. The total export of rubber for this

*ADVANCE SHEETS Nos. 764 (June 25, 1900) and 844 (September 27, 1900).

season—July 1, 1902, to May 31, 1903—is 28,110 tons, as against 28,738 tons for the corresponding period of the previous season. It does not appear likely that the business of this closing month of the season will materially change the relative bearing of these figures. The crop shortage this year, as compared with the year of 1901-2, will therefore be only about 2 per cent, instead of 5 per cent as estimated January 1.

Closing of Venezuelan Custom-Houses.—Under date of June 5, 1903, Consul E. H. Plumacher sends from Maracaibo translation of a Government decree of May 27 closing temporarily the custom-houses at La Vela de Coro, Guanta, Puerto Sucre, Guiria, Caño Colorado, and Ciudad Bolivar. The decree provides:

ARTICLE 1. The custom-houses of La Vela de Coro, Guanta, Puerto Sucre, Guiria, Caño Colorado, and Ciudad Bolivar will be temporarily closed. The term allowed for merchandise that may arrive at the closed ports from Europe, the United States of North America, and the Antilles is as follows: For Europe, thirty days for steamers and sixty days for sailing vessels; for the United States, fifteen days for steamers and thirty days for sailing vessels; for the Antilles and Demerara, ten days, whether they are steamers or sailing vessels; and for Trinidad or Granada, two days, counting from the 1st of June, 1903.

ART. 2. The custom-house of the port of Juan Griego will be removed to the port of Porlamar, where it will have all the functions and will fulfill all the duties that are set forth in the laws of finances. The custom-house guard of Porlamar will take the place of the one of Juan Griego.

ART. 3. In each of the closed ports there will be established a custom-house guard with the duties and functions set forth in the code of finances.

ART. 4. The jurisdiction of these custom-house guards will be the same as that of the suppressed custom-houses.

ART. 5. The suppressed custom-houses of Guanta and Puerto Sucre will be submitted to the jurisdiction of the custom-house of La Guaira; those of Guiria, Caño Colorado, and Ciudad Bolivar, to the custom-house of Carupano; and La Vela de Coro, to Puerto Cabello.

Coinage for Venezuela.—Consul E. H. Plumacher writes from Maracaibo, May 26, 1903, that a legislative decree of April 11 authorizes the Executive to coin 4,000,000 bolivars (\$772,000) in silver, the work to be done at the mint at Philadelphia. Two million bolivars (\$386,000) are to be in coins of 5 bolivars (96.5 cents); 1,000,000 bolivars (\$193,000) in coins of 2 bolivars (38.6 cents); 800,000 bolivars (\$154,400) in coins of 1 bolivar (19.3 cents); 100,000 bolivars (\$19,300) in coins of 50 centimes (9.6 cents); and 100,000 bolivars (\$19,300) in coins of 25 centimes (4.8 cents). The circulation of this coin will be obligatory for the subjects in the proportion established for silver in the sole paragraph of article 17 of the law of July 9, 1891, on national money and under the penalty named in article 23 of the same law.

FOREIGN REPORTS AND PUBLICATIONS.

Italy's Commercial Navy.—A very interesting report made by a German imperial consul shows that in 1880 Italy entered the commercial world with 7,822 sailing vessels, registering 922,146 tons, and 158 steamers, with 77,050 tons—a total of 7,980 ships and 999,196 tons. In 1890 she had 6,442 sailing ships, of 634,149 tons, and 290 steamers, of 186,567 tons—a total of 6,732 ships and 820,716 tons. In 1901, the last date for which accurate and complete figures have been furnished, the number of sailing vessels was 5,337, with a tonnage of 575,207 tons, and the number of steamers 471, of 424,711 tons, or a total of 5,808 ships and 999,918 tons. The figures for 1901 put Italy ahead of France, which up to that time had held fourth place, with 957,756 tons, among Europe's seafaring states.

Size of Italy's ships.—Four thousand four hundred and eighty-nine ships, totaling 149,104 registered tons, ran between 1 and 100 tons; 473 ships, with a total of 112,192 registered tons, ran between 101 and 500 tons; 375 ships, with a total of 351,911 registered tons, were down for more than 500 tons each.

Building materials.—One hundred and forty-one sailing vessels, with 149,711 registered tons, had steel or iron hulls; 5,196 ships, with 425,496 registered tons, had wooden hulls.

Steamers.—In December, 1901, there were 471 steamers, with 671,398 registered tons gross, and 424,711 tons net carrying capacity. The indicated horsepower was 405,628; the nominal horsepower 90,674. Four hundred and four of these steamers had steel or iron hulls, while 67 were of wood. In 1886 Italy's ships with more than 1,000 tons registry numbered 57, with a total tonnage of 93,660 tons. In 1896 she had 106, with a tonnage of 173,974 tons; in 1901, 196 ships, with 355,455 tons. These figures speak for themselves.

The age of the Italian steamers is told in the following table, which also shows the number built in each period:

Period.	Steamers built.	Net registered tonnage.	Horse-power.
	<i>Number.</i>	<i>Tons.</i>	
1860-1870.....	75	31,038	9,255
1871-1875.....	60	47,015	11,037
1876-1880.....	57	46,313	9,726
1881-1885.....	103	118,257	31,034
1886-1890.....	53	38,270	7,510
1891-1895.....	38	26,633	5,181
1896-1900.....	71	93,200	14,151
1901.....	14	23,085	2,780
Total.....	471	424,711	90,674

A glance at these figures reveals the fact that in 1901 Italy had 123 steamers, with a registered tonnage of 142,918 tons, no one of which was over 11 years old and the greater number of which were not over 6 or 7 years old; 85 were steamers (116,285 registered tons), built on the newest and best plans. This is well worth noting.

Building activity.—The following table gives interesting information regarding the number of ships of all kinds built by Italy in the periods named:

Period.	Ships. <i>Number.</i>	Registered tons.	Value.
1866-1870.....	3,427	405,436	*\$23,999,346
1871-1875.....	2,710	367,617	*21,648,684
1876-1880.....	1,351	174,413	10,060,031
1881-1885.....	966	69,971	3,988,268
1886-1890.....	1,348	60,961	4,072,068
1891-1895.....	1,385	77,569	5,785,898
1896-1900.....	883	122,820	14,773,215
1901.....	154	44,543	5,954,158

* Estimated.

Thus, from 1866 to 1876, the average amount constructed was 75,000 tons, worth \$4,450,000; the average from 1877 to 1896, 16,000 registered tons, worth \$1,060,000. With 1897 a new era opens. It indicates progress and unprecedented prosperity. The favorable results are thought to be based on the premiums paid to builders by the Royal Government. The movement is indicated by the following table:

Year.	Ships. <i>Number.</i>	Registered tons.	Value.
1897.....	161	11,458	\$2,200,000
1898.....	163	19,478	2,460,000
1899.....	188	33,802	3,220,000
1900.....	188	51,476	5,340,000
1901.....	154	44,543	5,940,000

Among the ships of 1901 were 25 steamers, with 37,590 registered tons, worth \$5,640,000, of which 4 were splendid screw steamers—the *Sardignia*, *Liguria*, *Lombardia*, and *Umbria*. Quite recently a sister ship—the *Piemonte*—has been added. Besides these boats and all above enumerated, Italy has caused quite a number of new vessels to be built and bought abroad. In 1901 she had 3 steamers, with 2,189 registered tons, built abroad, while 28 steamers, with 24,820 registered tons, were bought abroad. She sold 32 steamers, registering 21,679 tons. In accordance with the laws of 1896 (July 23—No. 318) and 1901 (May 16—No. 176), building premiums amounting to \$1,329,959 were paid and tariff rebates amounting to \$33,653 paid back, and \$211,753 paid on trips made to specified places.

New Electric Fast-Flashing Light.—The following is a résumé of an article in a German periodical, *Ueber Land und Meer*:

Members of the shipping, industrial, and commercial world will find much to interest them in the new flash light erected by the German Empire on the island of Helgoland in the North Sea. Germany is particularly proud of the results. Her interest in it, of course, is great, for it is that of an immediately or directly interested party. The system or principle employed is said to be entirely new. Not only that, but it was said to present absolutely insurmountable difficulties. The era that opened with 1900 is one that delights in nothing so much as in solving "insolvable" problems and doing "impossible" things. The revolving light on Helgoland is not only the largest in the world, it is the most unique, for Germans claim that it never had a model.

Special praise is given, and it is claimed that special credit is due, to the Empire's technicians who persisted in their purpose until they perfected their plans, for they had to do it in the face of warnings from experts in all parts of the world. They built upon the superiority of the German reflector, with its exactly parabolic ground-glass mirror or speculum, and the marvelous success of the Helgoland fast-flashing light has justified German effort, skill, and courage. In these lines, for a long time, France was in the lead. It looks as if she would have to guard her laurels. The reflector, invented by Schuckert, with its parabolic mirror, is easily earning a place by the side of the world's very best work. It took a long time to get a hearing for the glass parabolic mirror in the light-house world. The bright fires—"feux éclairs"—of the system, based upon a combination of Fresnel lenses and totally reflecting ring prisms, which were built by the French with marvelous skill and accuracy, blocked the way to the new lights. About the middle of the nineties German experts were sent to France by the German Imperial Government for the express purpose of studying flash lights. The experts stayed long enough to find out all that was best in the French system, aided thereto by the kindness of the scientific men of the Republic. Before their return they were convinced that by means of two or more reflectors, erected upon a reflector with Schuckert's glass parabolic mirror, results equal to those of France could be produced.

Experiments were made in Nuremberg. They went far beyond what the most sanguine had believed possible. The revolving reflector of the German apparatus was fully equal to the Frenchman's revolving light. As soon as the experts had demonstrated their point, work was begun on a light reflector or projector equal to the largest ever used. It was to represent 30,000,000 candlepower and

to last no longer than one-tenth of a second. The flashes must follow each other every five seconds. It is hardly necessary here to go into details that would require cuts or illustrations to explain. With the scientific papers of the Empire one may be permitted to point out the important fact that the flash light illumines the entire horizon. In normal weather it may be seen 23 sea miles (23 leagues). When the weather is favorable, the beams go far beyond the central fires or light rays. On the first night that the new light was used, its peculiar, flashing beams were seen by people standing on the mole at Busum, a distance of 65 kilometers, or a trifle over 40 miles. The watchers in the light-house at Amrum, about the same distance, were able, in unfavorable weather to see the same beams as they rapidly appeared and disappeared. It was noted that the otherwise bluish-white light of the electric arc appeared red.

Technical High School in England.—The following is a résumé of an article published in the *Frankfurter Zeitung*, June 29:

Lord Rosebery wrote the London County Council, submitting a plan for the establishment of a school in London like the famous technical high school at Charlottenburg, near Berlin. In his letter, Lord Rosebery says it is almost a shame that capable, ambitious English boys, who are striving to obtain a complete technical training, are forced to visit American or German universities. Many English industries have suffered—some of them very seriously—and some are still suffering because England failed to provide advanced instruction in the technical trades, sciences, etc., or to provide means for doing the research work that is done so successfully by the Germans.

The most complete example of such instruction, according to Lord Rosebery, is, perhaps, the technical high school at Charlottenburg—which the Empire has to thank for a large part of the industrial success attained since 1870-71. Because of Berlin's and Charlottenburg's better methods of preparing young men for their life work, young Londoners and other English boys that come up to London to look for positions find them already filled by Germans. Here one has the cause of the German clerk's ubiquity. He is better prepared than is the English boy for all kinds of work, particularly along lines that call for technical training. Lord Rosebery indicated a desire, in his letter to the county council, to contribute liberally to such a school. He adds the names Wemher, Veit & Co. This firm, as well as others, is willing to expend large sums to secure such a school. A beginning is to be made by buying 4 acres in Kensington for \$1,000,000. Upon this, buildings to cost \$1,500,000 are to be erected. The only hitch in the good work is the necessity of getting \$100,000 per year to support the school. The main purpose of Lord Rosebery's letter is to get the county council to guarantee the money. A committee or body of directors has been organized, with Lord Rosebery at its head. Among the members are the Duke of Devonshire, Lord Balfour, Julius Wemher, and the vice chancellor and president of the University of London. With such men behind the movement it ought to succeed. Of the great need of technical, industrial, and industrial-art education England is at last fully aware. It has been preached for so long and by so many able advocates that its development can only be a question of a very short time.

British Consular Notes on Danish Trade.—The following notes are taken from a report of the British consul at Copenhagen to his Government:

Electric tramways.—The cars for the extensive system of tramways in Copenhagen have been, up to the present, built in Germany and in Denmark; also the electric plant. The value of the supplies runs into many thousands of pounds.

Sporting requisites in Denmark.—The attention of British manufacturers is called to the rising popularity of athletic sports in Denmark. The trade in sporting articles is growing and the demand for athletic goods increasing. Hitherto the sale of these goods has been entirely in the hands of British manufacturers or exporters.

Haberdashery.—Almost the whole of the haberdashery trade is in the hands of the Germans, and travelers from the United Kingdom are few and far between. The best way to introduce this class of trade is to send an experienced traveler to find out the local requirements, and, if necessary, appoint a reliable agent, always being careful to quote prices and give particulars in Danish.

Wall paper.—There is also considered to be a very good opening for the introduction of wall paper into the Danish market, and a good and profitable trade might be worked up. Building is still on the increase, and the consul states that he can not remember ever having heard of a traveler for these goods coming to Copenhagen.

California wines.—Commenting on an attempt being made to introduce California wines on the Danish market, the consul says:

From all accounts the prices asked are somewhat too high. It remains to be seen how far it is possible to popularize them in a country in which excellent beer is sold for 1s. 2d. (28 cents) per dozen bottles. There is no doubt that this matter is worth looking into.

Germans in Concepcion, Chile.—A foreign consular report of recent date says that Germany comes close behind England in selling goods to the Chileans at the port of Concepcion. Thither she sends cotton and woolen goods, clothes, linings, knit goods, furniture cloths, trimmings, ribbons, and cloakings; leather goods and leather; musical instruments; chemicals, dyes, and drugs; stone, glass, iron, and enameled wares; machines, agricultural tools, etc., of all kinds; technical and surgical instruments, preserves, toys, objects of art, lamps, cement, pianos, furniture, photographers' supplies, oils, weapons, and artificial flowers. Chile makes a great deal, if not most of her own necessary or useful articles; hence a falling off in their importations has been observable. Among these articles are ordinary glass bottles and demijohns, matches, packing paper, blackings, blank books, tags, printed matter, shoes,

etc. ; brooms; ready-made clothing and cotton knit goods; flour, etc. ; alcohol, liquors, beers, and wines; mirrors, leather and leather goods, shot, twines, linseed oils; pastes, macaroni, and noodles; ordinary chocolates and sweetmeats, tea biscuits, straw hats, shirts, carriages and other vehicles, bits and spurs, brushes and drawing materials, woven-wire wares, furniture, gloves, billiard and ten-pin balls and pins, iron and brass bedsteads, galvanized-iron roofings, iron safes, railroad cars or coaches, small steamers, boilers, sulphuric acid, etc. For the production of these various articles many raw and half-raw materials are imported.

The list indicates a desire on the part of people in South America to manufacture as many as they can of the staples needed in their daily lives.

Commercial Travelers in Roumania.—In his recent report on the trade of Roumania for the year 1902, which appeared in the British Board of Trade Journal, the British vice-consul at Galatz writes to his Government:

It is very necessary that a commercial traveler in Roumania should be well acquainted with French and German. In order to obtain this result, the firm invokes the aid of a German, who serves his British master for a time and learns where our strength and weakness lie. In the meantime, the commercial traveler does not forget his own interests, and before long he is in the employ of a German firm, who profit greatly by his experience of British and German trade methods. I do not, of course, mean to imply that the same person, when in the employ of a British firm, failed to serve his master with diligence and fidelity.

In the case of the commercial traveler being an Englishman, he will often be found to be deficient in knowledge of the language of the country. Unlike the German, he does not think of calling on the consul, invoking his knowledge of the place. He forgets, too, that a firm considered safe a year ago may not be so at the time of his visit. No German or Austrian, traveling for a German or Austro-Hungarian firm, would dream of going to various shops, etc., for orders without first paying his consul a visit and making thorough inquiries regarding firms, new and old, and fresh markets.

It is a serious want of consideration on the part of British traders to place their agencies in the hands of persons dealing in, or representing the makers of, similar goods in Austria-Hungary, Germany, etc. On the basis that "no man can serve two masters," it would be prudent to refuse to give the "sole sale" of any particular line of British-made goods to an agent or commission house selling continental makes at the same time. When a sole agency is insisted upon, the conditions should be binding on both parties.

International Exposition at Milan in 1905.—*Nachrichten für Handel und Industrie* says that the completion of the world's longest tunnel—Simplon—is to be celebrated at Milan, the nearest important Italian city, by an international exposition, for which preparations have been made. It is to take place upon the opening of the

tunnel to traffic in 1905. A fund of \$600,000 has been raised, of which fully half has been contributed unconditionally. This gives the enterprise a good guaranty to begin with; it makes it sure of an opening. Success will have to depend upon the people exhibiting. The King of Italy has accepted the position of protector. The committee having the matter in charge has established certain fixed rules, with a view to confining the exhibits within certain lines. The departments of transportation by land and water, navigation of the air, and the division dealing with the question of protection from accident in the transportation world, as well as the so-called decorative-arts exhibits, may be international in character. The high-art exhibits shall be exclusively national—*i. e.*, Italian. Just why this ruling has been made does not appear. It is provided also that only such products will be admitted for exhibition as have an actual technical or artistic value, or which are characteristic novelties. The purpose of this rule is to prevent the exhibition of cheap bazaar articles.

Australian Tariff Problems.—The *Nachrichten für Handel und Industrie* says:

- A difference of opinion prevails in Australia between the Australian Government and the governments of the different States making up the new National Federation. It is due to a doubt about the payment of duties on goods imported by one of the States for its own use. Up to quite recently the federal customs officers held that each State had to pay duties, even on goods destined for State purposes. A case was carried up to the supreme court by the treasury department of New South Wales. The decision was in favor of the State. An appeal is to be made to the privy council in London, for the matter is turning out to be much more serious than was at first thought possible. If the States can bring in everything they need free of duties, as is claimed by the advocates of what may be called State rights, vast quantities of iron, steel, locomotives, machines, and telegraph, cable, and railroad materials may be imported, to the great injury of Australian industries that had been promised protection. Up to the date of the decision it looked very dark for European manufacturers who hitherto had sent large shipments of all kinds of goods to the Australian States. If the State governments can import what they need free of duty, they can easily kill off the "infant industries" that were being established in those far-off parts, for no factory in Australia, unprotected by fairly high tariff, is able to keep up a successful competition with Germany, France, Italy, England, and other European states. It is not strange, therefore, with a danger so great and so near, that the Federal Government appeals to the imperial powers in London. If the decision is in favor of the States paying duties, it means fully \$1,500,000 to the treasury.
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An Electric Crane in Germany.—The following is a summary of an article which recently appeared in *Ueber Land und Meer*:

There was erected on the wharf at Emden a few days ago the first electric crane ever put up in Germany. It is three stories high

and is run by three electric motors, which are fed from a central plant with a 400-volt pressure. It is capable of developing 60 horsepower, and is built on the very edge of the mole, or wharf, alongside of which the ship to be loaded is tied. A loaded coal car is backed onto a platform under the crane's hooks, the electricity is turned on, the car and platform ascend a story, the wagon is automatically tipped, and a carload of coal is unloaded into the ship's hold. The capacity of the crane is over 100,000 pounds.

In the July number of **CONSULAR REPORTS** Mr. Harris, the United States commercial agent at Eibenstock, Germany, calls attention to an electric crane at Kiel with power to lift 150 tons and to load two ships at the same time, similar to the one referred to above.

Italy's Commercial and Industrial Situation.—One of Italy's leading commercial papers, *Il Commercio*, says that during the first three months of the year 1903 Italy's imports, including gold and silver, amounted to \$92,200,600, against \$84,322,286 for a like period in 1902. The exports were \$72,761,000 for the first three months of 1903 and \$68,901,000 for the same period of 1902. The increase in imports (\$7,877,714) was due to increased importations in grains, flour, and raw products for pastries, etc. Cotton and cotton goods went up \$1,698,400; next came animals and animal products, with an increase of \$868,500. Following these came chemicals, apothecary wares, pitch, perfumeries, etc., to the amount of \$675,500.

The exports increased by \$3,860,000, made up for the most part of silk and silk goods. Besides its ever-increasing revenue from the thousands who visit her shores as travelers, Italy is earning increased sums by her rapidly reviving manufactures. The waters of the Alps and Apennines are giving her as cheap power by means of electrical plants as coal is furnishing to Belgium, Germany, England, and the United States.

Effects of High-Priced Cotton in England.—The following article relative to the effects of high-priced cotton in England is translated from the *Nachrichten für Handel und Industrie*, of Berlin:

The increase in prices for raw cotton is injuring the cotton industries of Great Britain. Lancashire spinners have come to the conclusion that it is possible to free themselves from their very unfavorable position by curtailing the production of cotton goods. The president of the Master Spinners' Association sent out a circular letter about the middle of May not only to members, but to all the spinners of the country, asking them to shut up shop during Whitsunday week and afterwards on Mondays and Saturdays of each week. All agreed to do no work during the

week indicated, but concluded to leave the question of closing Mondays and Saturdays open for further information and discussion. The Cotton Spinners and Manufacturers' Association agreed to do essentially the same thing. This is why the cotton mills of Lancashire were all closed during Whitsunday week and why quite a large number were not working on the Mondays and Saturdays after Whitsunday. The coal miners of the country are complaining about the decreased demand for furnace or boiler coal, due to movement in the cotton mills.

Tenders for the Supply of Hospital Stores in Egypt.—The Egyptian Journal Officiel of June 22 announces that tenders will be received at the central administration, sanitary department, Cairo, until 1 p. m. on August 31, 1903, for the supply of hospital stores and equipment, consisting of calicoes, flannels, blankets, kitchen utensils, etc., necessary for the year 1904. Forms of tender, samples, and all information may be obtained on application to the director of stores, central administration. Offers should be made on stamped paper. Tenders should be addressed "Director-General, Sanitary Department, Cairo," and marked in left-hand corner "Tender for hospital stores, etc." The director-general reserves to himself the right to refuse or accept any tender or part of tender.

Catalogues in Foreign Languages.—A report by the British vice-consul at Adana has been received at the British Foreign Office, from which the following extract has been made:

I am glad to say that I have recently received catalogues from British houses in the French language and the French comparative weights and measures, which is a step in the right direction. I would strongly advise our traders to send a card with name, address, and business before troubling to send expensive trade circulars and catalogues to consulates. In case a sale exists for such goods we shall not fail to reply. This will save much trouble, expense, and misapprehension, and will enable traders to form a good idea of what trade they can expect all over the world. By the present system no reply reaches them unless a definite question is asked, and, remaining in doubt, they continue to send catalogues, many of which must necessarily be of no use whatever in certain parts of the world.

Agricultural Machinery and Hardware in the Sudan.—The British Board of Trade Journal of July 2 contains an article on the "Commercial development of the Egyptian Sudan," in which attention is directed to the various openings in that country. With the development of agriculture, it is pointed out that a demand for machinery is bound to arise, particularly as regards irrigation machinery, cotton gins, and oil and flour-milling machinery.

Straw Presses in Russia.—The British consul-general at Odessa states that presses for pressing straw from the thrasher in the field for convenience in carting to the homestead where it is used for winter fuel can find a ready sale in that district. A machine was offered at \$720, but did not work successfully. It is thought that a press which would meet all requirements would be sure to sell.

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